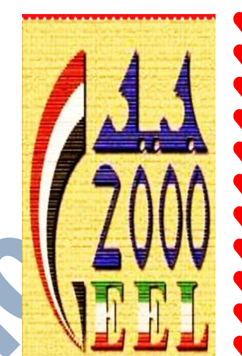
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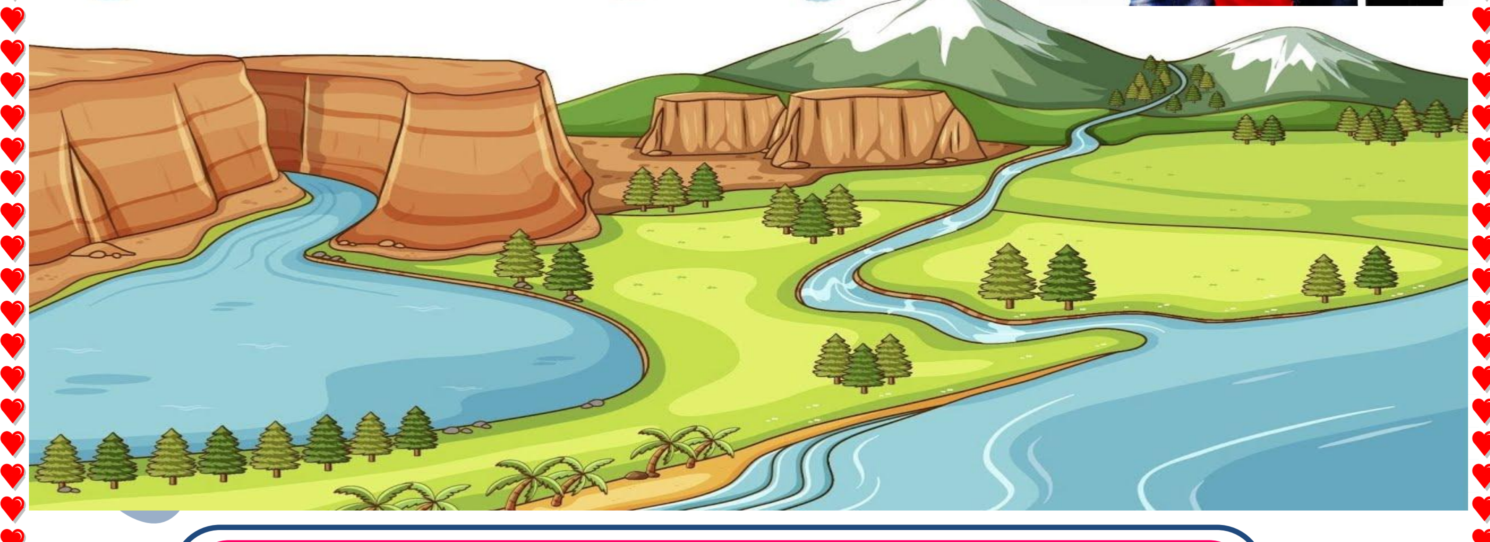
Primary (5)

Concept (3.1),(3.2)

Second term

(2024/2025)





Name:………………………………………………

Class:……………………………………………….

Concept (3.1)

Lesson (1 and 2)

Hydrosphere and Biosphere Interactions

- **The Earth is a complex system that includes living organisms and nonliving things that interact with each other.**
- **Scientists divided the Earth into four main systems (spheres) which are:**

✓ Geosphere (Land):

- It is the system that includes rocks on the Earth's crust.
- Molten rocks and heavy metals that lie under the Earth's crust.
- Such as rocks and soil

✓ Atmosphere (Air):

- It is the system that is composed of a mixture of some gases such as **nitrogen, oxygen, carbon dioxide, water vapor.**
- It is the wind (that moves the Leaves).
- It's Breathing of humans

✓ Biosphere (Life) :

- It is the system that includes all living organisms such as **microorganisms, plants (trees , grasses), Animals (birds , butter flies) , humans (boy and girl) ….**

✓ Hydrosphere (Water):

- **It is the system that includes all water on the Earth such as fresh water and salt water like Puddle.**

- Water is an important natural resource for all Living organisms. ***(Give reason)***
  Because:
  1- Animals and plants need water to drink, grow and survive.
  2- People use water for drinking, cooking, bathing and playing.
  3-Some animals and plants live in water.
- **Water is important for all living organisms and also can affect non-living things.**

✓ **Water can affect nonliving things like rocks (Give reason) ?**
Because water can cause weathering and erosion of rocks.

Weathering	▪ It is a Process of breaking down rocks into smaller particles due to movement of water (rain) , wind and temperature .
Erosion	▪ Process in which the small particles of rocks are transported from a place to another by water or wind



Note :-

➢ Water is found everywhere on Earth ,where it is found in (Rivers , lake , Oceans , seas and underground)

➢ Nearly three-quarters (more than 70%) of Earth is covered by water.

Give reason For: Earth looks like a blue marble from space?
Because water covers three –quarter of the Earth

- **Water on Earth can change from liquid state to:**
  - **Solid state** (ice) by **freezing** in extreme cold weather.
  - **Gas state** (water vapor) by **Evaporation** in hot weather.
- **The total amount of water on Earth does not change, even if water changes from one state to another, so we cannot make new water, but we can recycle it.**

- **Humans use water in many purposes such as:**

1. **Bathing**
2. **Preparing food**
3. **Manufacturing**
4. **Cleaning**
5. **Travelling**
6. **Recreation**

Water bodies on Earth have different forms and locations such as:



Oceans and seas:

-They are very large water bodies.

- **Oceans and seas** always contain salt water.



Lakes:

- A lake is a water body that is surrounded by land.
- Lakes are often contain fresh water, but sometimes they contain salt water.

Rivers:



-A river is a water body that always flows from an area of high place to an area with lower place in a definite channel.

-Rivers always contain **fresh water**.

- ## Groundwater:

-It is the water that lies beneath (under) the Earth's surface.



Renewable resource	Is a natural resource that can be replaced

- **Is water a renewable resource?**
  Water that forms the hydrosphere is a renewable resource.
  because it has "water cycle" in nature.
- **During the water cycle in nature:**
  -Water on the Earth evaporates and goes into the air forming clouds.
  -Water returns back to the Earth's surface during raining.

- **plants are a renewable resource?** (Give reason)
  Because
  1- they can grow again through their life cycle.
  2- They never run out.

Notes :

-Plants can be planted from seeds that grow up forming new plants.
-Plants depend on water to grow and survive, so
-Plants are affected if the amount of water decreases or water gets polluted.

- **Hydrosphere interacts with biosphere, where living organisms such as plants in the biosphere depend on the hydrosphere to survive.**

Lesson (3)

Geosphere: Geo → Means → Earth

It is the system that includes:

(rocks, minerals, soil).

- Landforms (such as mountains, valleys…)

- Molten rocks inside Earth.

-It is also known as (Lithosphere)

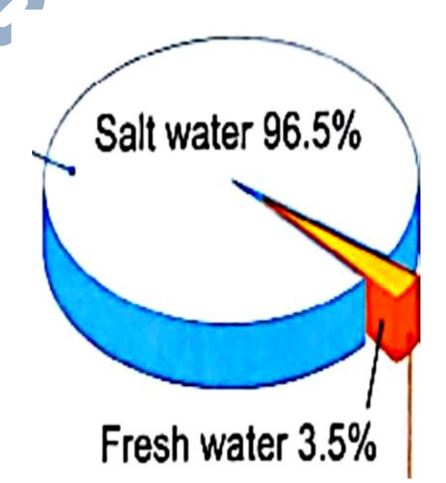
Hydrosphere: Hydro → Means → Water

-It is the system that includes all of the water on , under and above Earth.

- About 71% of Earth is covered by water.

- Water that covers Earth may be:

P.O.C	Salt water	Fresh water
Ratio	It forms about 9٦,5% of water On Earth	It forms about 3,5% of water On Earth
Found in	Ocean , seas , gulfs and some lakes	River , rainwater , ground water and most of lakes



-This system contains: (oceans -seas - rivers. - groundwater – glaciers).

Glacier	It is a large sheet of ice or snow that moves slowly over Earth's surface. -It is made of ice.



Ground water	• It is water that lies **beneath (**under) the Earth's surface • It has been leaked into Earth through a layer of porous rocks

➢ Some characteristics of hydrosphere:

- Hydrosphere contains all the liquid, solid and gaseous water on Earth.

About 71 percent (71%) of Earth is covered by water.

Notes:

➢ **Most of the fresh water on Earth is not found in liquid or running water, but it is found in the form of frozen water as large pieces of ice known as glaciers.**

Atmosphere:

Atmos → Means → Vapor

-It is the system that includes all the gases that surround Earth.

-The atmosphere is usually called "air".

-Air (atmosphere) is a mixture of many gases such as:

(oxygen gas - carbon dioxide gas - nitrogen gas).

Biosphere:

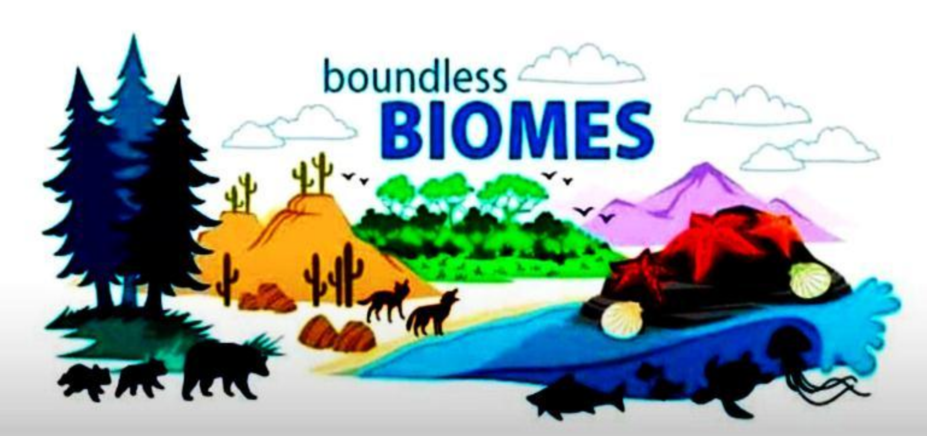
Bio → Means → Life

-It is the system that includes all living organisms on Earth.

-Biosphere contains: (humans – animals - plants).

➢ Some characteristics of biosphere:

- Biosphere is any part of Earth in which life can exist.
- **Biome**: It is a large region of the world that has **similar** soil, climate, plants and animals (wildlife).
- Examples of biomes:
  - Deserts.
  - Rainforests.
  - Wetland.
  - Forests.
  - Grassland.



Earth's systems interact:

The interaction between the different four systems of Earth:

Interactions	Phenomena
Hydrosphere interacts with geosphere.	***Erosion of rocks by water.** *** Formation of lakes.**
Atmosphere interacts with biosphere.	• **During photosynthesis process, plants take in carbon dioxide gas from air and give out oxygen gas to air.** • **Respiration process .**
Geosphere interacts with biosphere.	• **During photosynthesis process, soil provides nutrients for plants roots.**
Hydrosphere interacts with biosphere.	• **Plants need water to survive.** • **Humans and animals drink water to survive.** • **Water is habitat of fish**

Lesson (4)

Water ecosystems are also called aquatic ecosystems.

Aquatic ecosystems on Earth can be classified in different ways such as, they can be classified into:

1- Saltwater ecosystems. **2- Freshwater ecosystems.**

✸ Saltwater ecosystems:

- **Oceans are the largest saltwater ecosystems that cover large parts of Earth's surface.**
- **Saltwater ecosystems of oceans and seas include**: **Shallow** and **deep** areas .

Shallow areas	Deep
• Contain **coral reefs** and **intertidal zones** ➢ **Intertidal zones :** Is the area along the coast that disappears under water at the high tide and appears at the low tide.	• These areas are called **abyssal zones** ➢ **Abyssal zones :** Are very deep areas in oceans so that sunlight cannot reach them

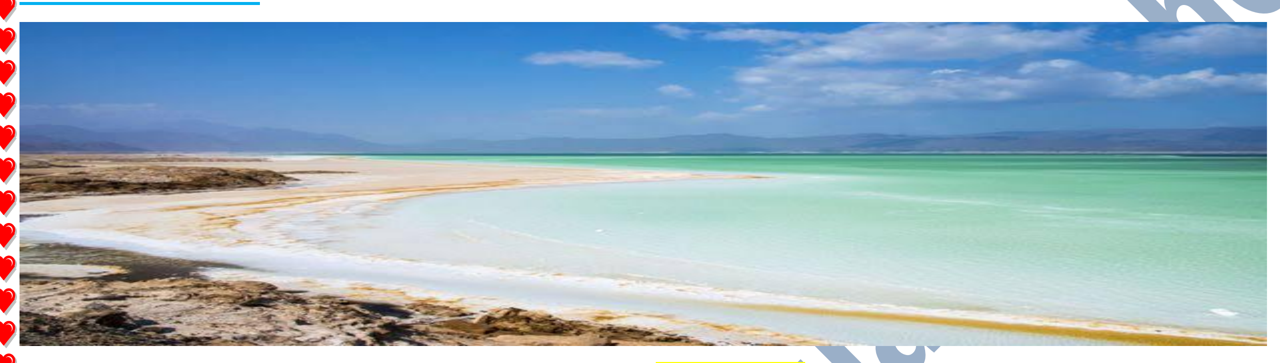
Saltwater lakes:

-Some lakes have salt water.

-Ex. 1-Lake Assal in Djibouti. / 2-Lake Bardawil in Egypt

- Lake Assal has a high concentration of natural salts, so it is too salty for fish and most aquatic animals to live in also, there are few plants that can grow in this area.

Lake Assal:



-There are many different types of bacteria live in Lake Assal.

Freshwater ecosystems:

Freshwater ecosystems include: ***1-Ponds and lakes.***

- ***2-Flowing water bodies .***

-In many ponds and lakes, the water is present all year.

- **Some ponds and lakes may dry up during some months? (G.R)**

  Because when the temperature increases in summer, water evaporates faster. so animals and plants that live there must adapt to the changes that happen in these ponds and lakes.

Notes :

- Lake Nasser is freshwater lakes in Egypt.

Flowing water bodies:

- They include rivers and streams

Streams	Are small bodies of flowing water

- Water is always moving in the flowing water bodies.

- Many different plants and animals live in flowing water bodies.

Lesson (5)

Aquatic Ecosystems:

Living organisms that live in three different aquatic systems which are (ponds, streams and Oceans)

P.O.C	Ponds	Streams	Oceans and seas
Type of water	Fresh water	Fresh water	Salt water
Water movement	Still water	Running water where water in streams are cool and flows fast.	Constantly moving in the form of waves that crash onto the shore.
Species live in	• Some plants like (Water lilies) • Some types of worms • Salamanders and Frog	• Cat fish • Trout (salmon)	• Kelp • Dolphin • Starfish • Moses fish (Flounder fish)

- ***Notes:***

1. Oceans and seas environments include many smaller ecosystems.
2. Ocean water circulates around the world in patterns called ocean currents.

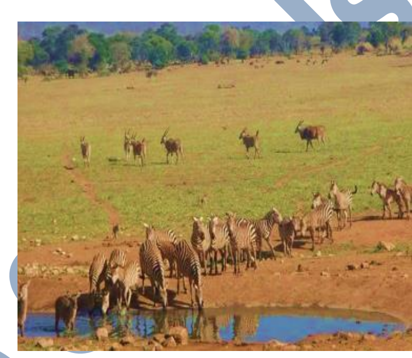
Concept (3.2)

(Water as a Valuable Natural resource)

Lesson {1}

Can you explain?





- **Water is a valuable natural resource on Earth?**

  - All living organisms (humans, animals and plants) need water to survive.

  - Water makes up nearly two-thirds of the human body.

  - Water keeps the body temperature of living organisms moderate.

✓ **Give reason for: We must conserve fresh water ?**

Because there is a limited amount of water on Earth.

- Most of the water is salt water which cannot be processed by most plants and animals.

The importance of water

Uses of water

- **Drinking, bathing, cleaning vegetables and fruits, fishing and transportation.**
- **Some other uses of water such as:**

Agriculture



Generating electricity



Sources of water on Earth such as:

.Rivers .Streams .Lakes .Oceans .Glaciers

.Seas .Ponds .Rains .Groundwater (Aquifers)

Sources of fresh water and sources of water:

{1} Sources of fresh water:



Note :

the percentage of fresh water that is suitable for drinking is very small compared to the percentage of water on earth .

-Most of lakes contain fresh water and some contain salt water.

Conserving fresh water:

- **Conserve the limited amount of fresh water through many ways such as:**

{1} Turning off water tap (faucet) during brushing your teeth.

{2} Taking a quick shower.

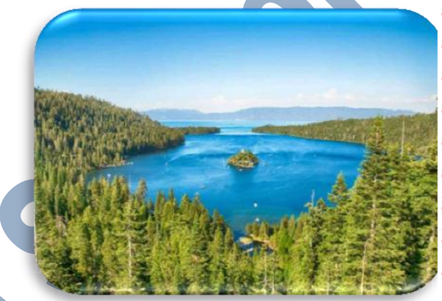
{3} Turning off the water while washing your hair.

Details some water bodies:



[1] A river:

- Type of water: fresh water.
- Location: Mountains
- A river often starts in the mountains as a stream
- The flow of a river ends when it meets a sea or a larger river



[2] A lake

- Type of water: most of lakes contain fresh water.
- Location: Low-lying areas.
- A lake is a large body of water surrounded by land.
- A lake forms when water collects in a low-lying area.



[3] A wetland

- Type of water: Fresh water .
- Location: Land partially covered with water.
- From kinds of wetlands: Swamps (marshes) and ponds (bogs).



[4] An estuary

- Type of water: Salt water mixes with fresh water.
- Location: Where a river meets a sea or an ocean.
- Estuaries are home to thousands of plants and animals.



[5] Groundwater

- Type of water: Fresh water.
- Location: In the cracks and spaces of underground rocks.
- There is more amount of groundwater on Earth than the water in rivers and lakes.



[6] Oceans

- Type of water: Salt water.
- Location: Oceans surround the continents.
- All of the oceans are connected to each other.
- The ocean's floor has mountains, plains and plateaus.

• Lesson {2} Water of Earth

Earth's Fresh Water

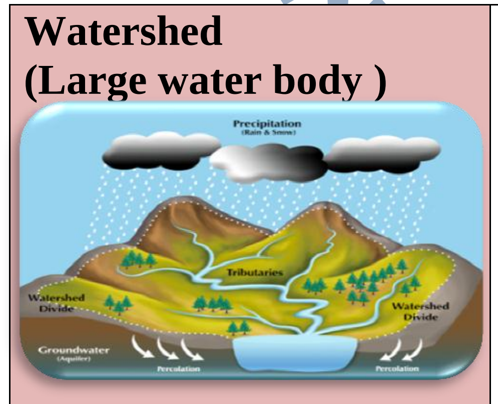
- Fresh water is needed for drinking, irrigation, agriculture, industry, generating electricity, Etc.
- More than 10% of the world's animal species live only in freshwater habitats.
- Fresh water scarcity and quality are two main risks that are threaten the World.
- **Poor quality of fresh water leads to:**
  - The death of thousands of living organisms every year.
  - The extinction of some species live in fresh water such as some fish and amphibians

➢ **Humans use some strategies to control and conserve fresh water for their needs such as :**

1-Building dams across rivers to store water

These Human activities cause imbalance of water that leads to :

- Drought
- Flooding

Watershed (Large water body) 	It is an area of land where water from different sources flows towards a common location usually an ocean, a sea or other large water body.

Notes :-

- **Freshwater systems focuses on the balance of water in watershed, where:**

1- When there is more rainfall, the level of water in rivers or streams will increase causing floods.

2 - When there is too little rainfall, the level of water in rivers or streams will decrease, so these water bodies may dry up causing drought.

3- But when there is water balance, rivers or streams will have a constant source of fresh water.

Lesson {3} Watershed predictions

A watershed help scientists understand how the water bodies in an area interact with one another.

Human activities that take place in some water bodies as tributaries and affect people , plants and animals that live near or in these tributaries.

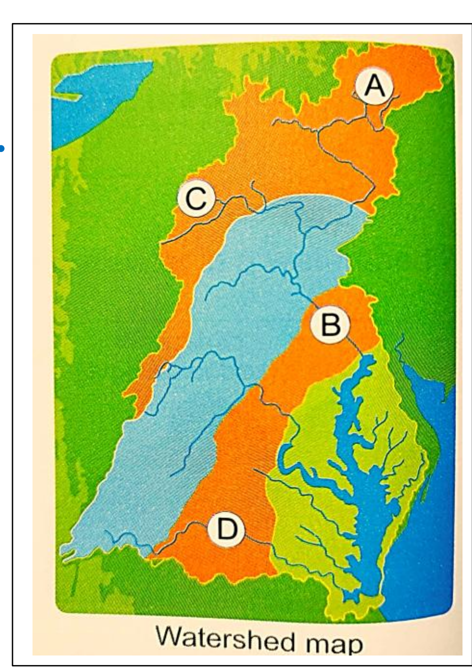
Tributaries	They are small water bodies such as small creeks or streams that flow into bigger rivers.

Tributaries as small creeks or streams → flow into → **Bigger rivers** → flow into → **Larger water bodies as bays, seas and Oceans**

- **What happens upstream in a watershed affects the water bodies downstream**

***Upstream: is place where a river starts.**

***Downstream : is place where a river ends**



Watershed map

① If a factory is built near a tributary at the area A.

-The factory waste will affect the tributary at Area (A)

-Water in tributary at area (A) carries the factory Waste to other water bodies connected to it

Causing water pollution .

② If a dam is built across a tributary at area B.

-The dam will hold the water behind it and this causes a change in the amount of water in other water bodies connected to this tributary.

③ If there is a farm using chemical fertilizers near a tributary at area C, the farm waste will affect the tributary at area C.

- The water in tributary at area C carries the farm waste that leak to other water bodies connected to it causing water pollution.

④ If a trash dump is established near a tributary at area D.

-The litter of a trash dump will be blown into the water of tributary at area D

-On windy days, the water in tributary at area D carries the litter into other water bodies connected to it causing water pollution.

Dam	It is a building established across a river which can hold water behind it .

✓ **Farms near tributaries may cause water pollution ? (Give reason)**

Due to using of chemical fertilizers that cause water pollution .

Lesson (4)

There are many things are made from natural resources such as:

- **Paper** is made from **trees.**





- **Plastic** is made from **oil products**.



- **Clothes** are made from **plant** like **cotton** and **animal products** such as **wool of sheep.**





Ways to conserve natural resources:

<table>
<tr><th>Preservation</th><th>Sustainability</th></tr>
<tr><td>

- It is the (action) restricting access (control reaching) of humans to these natural resources or using them.
- **Preservation of natural resources** Means prevent using or developing natural resources in special areas .

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- It is an important way of resources conservation
- using resources in a way that doesn't negatively affect the future supply of these resources .

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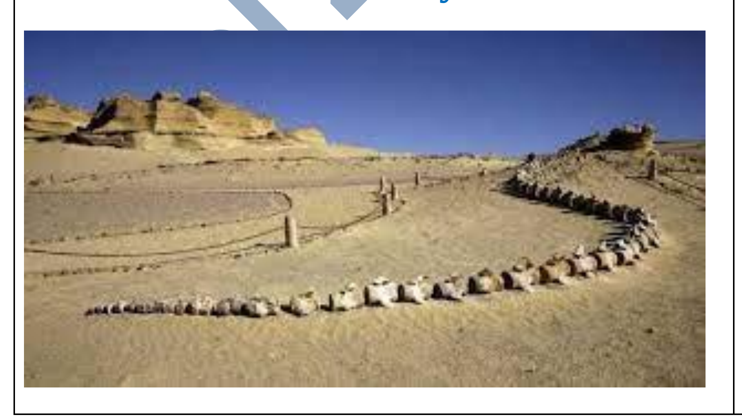
- **Examples :**

Countries prevent using or developing of natural resources in some protected areas of land such as:

1-Ras Mohammes protectorate **in South Sinai .**



2-Wadi Al-Hitan in Fayoum.



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- **Example:**

Cows feeding (grazing) on grass in a field where grass grows slowly



- **Sustainable situation:**

If cows placed in one large area of grass
so, cows still have more food and grass grow back in other areas.

- Unsustainable situation:

If cows are placed in many small areas of grass they began eating all grass before new grass could grow in these areas,
so grass disappeared and cows will be hungry.

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Results of overusing (depletion) some natural resources :

Natural resources	Results when using them more quickly
Fish	Because of overfishing they become rare and fishing will decrease.
Groundwater	It will run out and wells will become dry.

❖ Factors affecting resource sustainability:

1- Overpopulation. 2- Pollution. 3- Unequal distribution of resources.
4- Overuse (over consumption) or damage of resources.

Natural resources may be:

1- **Renewable such as**: water, plant and animals.
2- **Non - renewable such as :** oil and coal.

Note:

- Renewable resources can be used up if people don't use them wisely.

➢ **Examples :**

1- When fresh water polluted .it becomes undrinkable.





2- Pollution of coal leads to soil pollution that causes death of plants and animals.



3- Cutting down trees leads to deforestation causing soil erosion.



❖ Uses of water:

- It is important for human to survive, taking shower ,washing hands , brushing teeth, watering plants, cooking food and flushing a toilet.

✚ **Note:**

We must conserve water during our daily activities by changing our habits like:

1- Decrease the time of some activities like taking shower.

2- Turn off water during some activities like brushing teeth.





❖ **To calculate the average amount of water that a person use in some daily life activities .**

First method :

Activity requires water	Number of minutes to do this activity each time	Multiply	Amount of water used each minute	Equal	Total amount of water used to do this activity each time
Taking a shower	10 minutes	×	7 liters	=	70 liters
Brushing teeth with water running	4 minutes	×	6 liters	=	24 liters

Second method :

Activity requires water	Number of times you repeat this activity in one day	Multiply	Amount of water used to do this activity each time	Equal	Total amount of water used to do this activity in one day
Flushing a toilet	4	×	5 liters	=	20 liters
Washing hands	6	×	4 liters	=	24 liters

If there is more than one person (for example: family)

Activity requires water	Total amount of water used to do this activity in one day (from previous table)	Multiply	Number of family members	Equal	Total amount of water for the family to do this activity in one day
Flushing a toilet	20 liters	×	4	=	80 liters
Washing hands	24 liters	×	4	=	96 liters

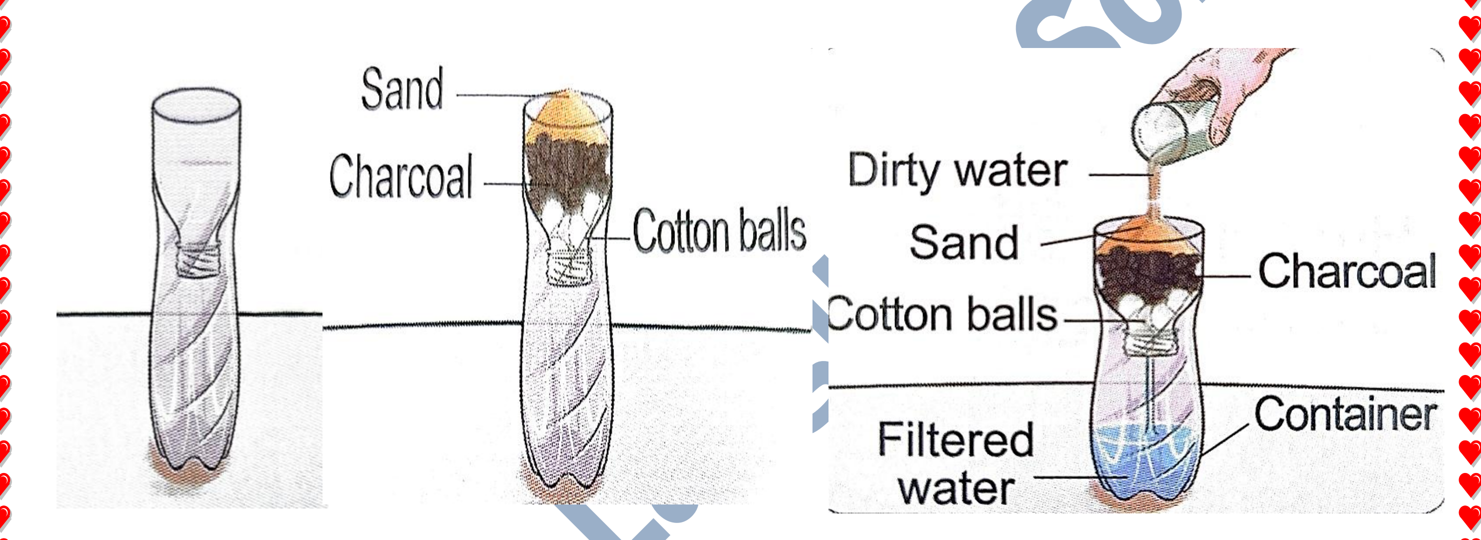
Lesson (5)

Human creates many methods to filter water to recycle wastewater or polluted water to use it again.

Recycle waste water	Removing harmful materials from water

Let's make a water filter (activity in the class)

You can make dirty water by adding mud to clear water.



- **Observations :**

1-The filter removes most of dirt from dirty water .

2-The filtered water moves down at the bottom of the container .

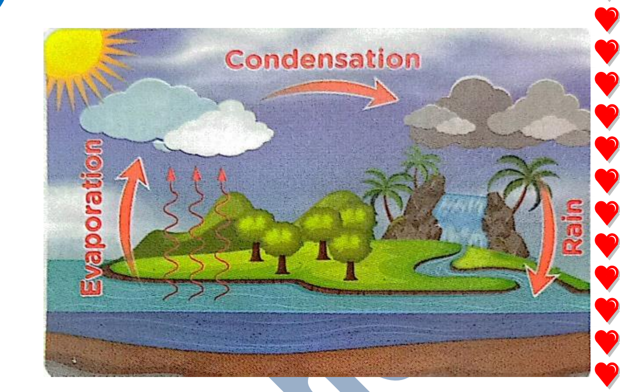
- **Conclusion :**

Water filters : are used to remove harmful materials from polluted water to get filtered water that human can use in many purposes .

Note :-

- Cotton , sand and charcoal can be used in making a simple water filter .

Lesson (6)



- We can conserve water by **Recycling water**.

- **Solar energy**:
  is very important in **recycling water .**

- **Water cycle :** is considered as an example of **recycling water.**

- **Wastewater: water that has already been used in homes and different industries .**

- **Wastewater engineers:**
  They are special kinds of scientists and some of them work in water treatment plants which remove harmful materials from water.



Bahr Al –Baqar wastewater treatment plant in Egypt.

Water treatment plants	They are stations which recycle wastewater by removing harmful materials from wastewater to reuse it .

Role of wastewater engineers

1- They design tools that provide us with clean water.

2- They observe the water quality and check the amount of pollutants in water

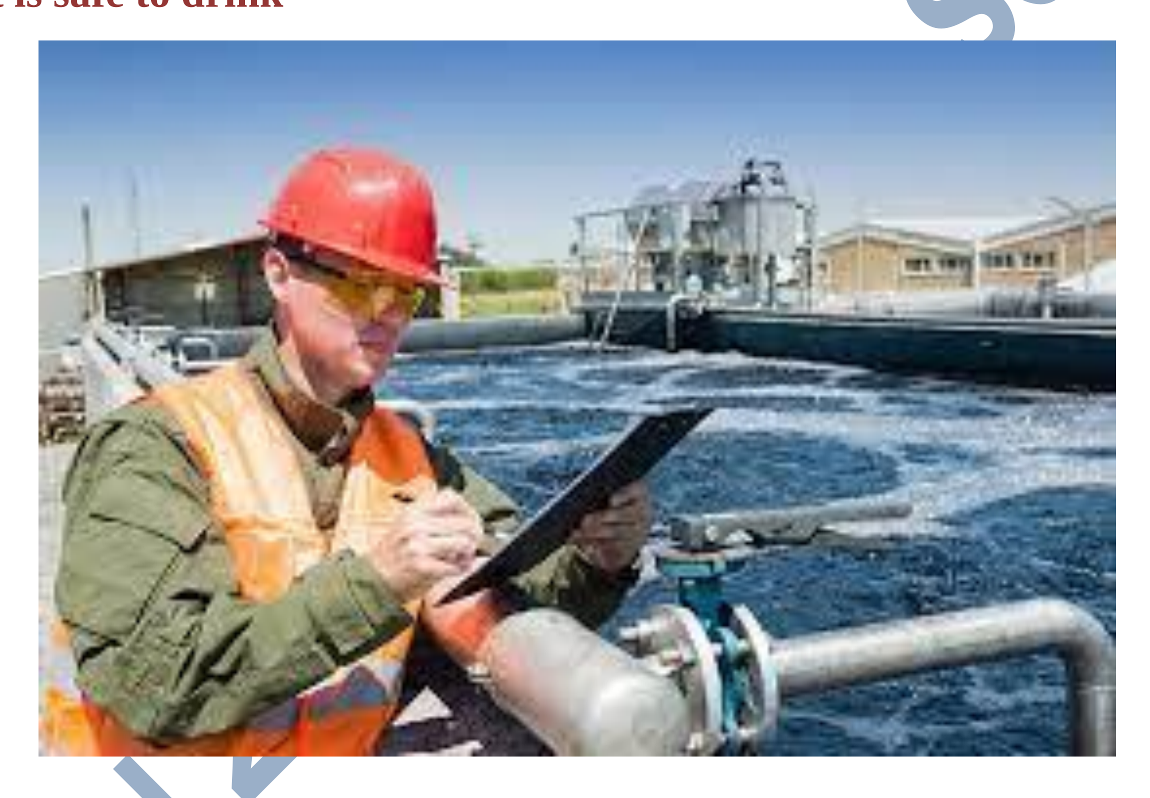
3- They decide where to build water treatment plant.

4-They observe and check each step in water treatment process.

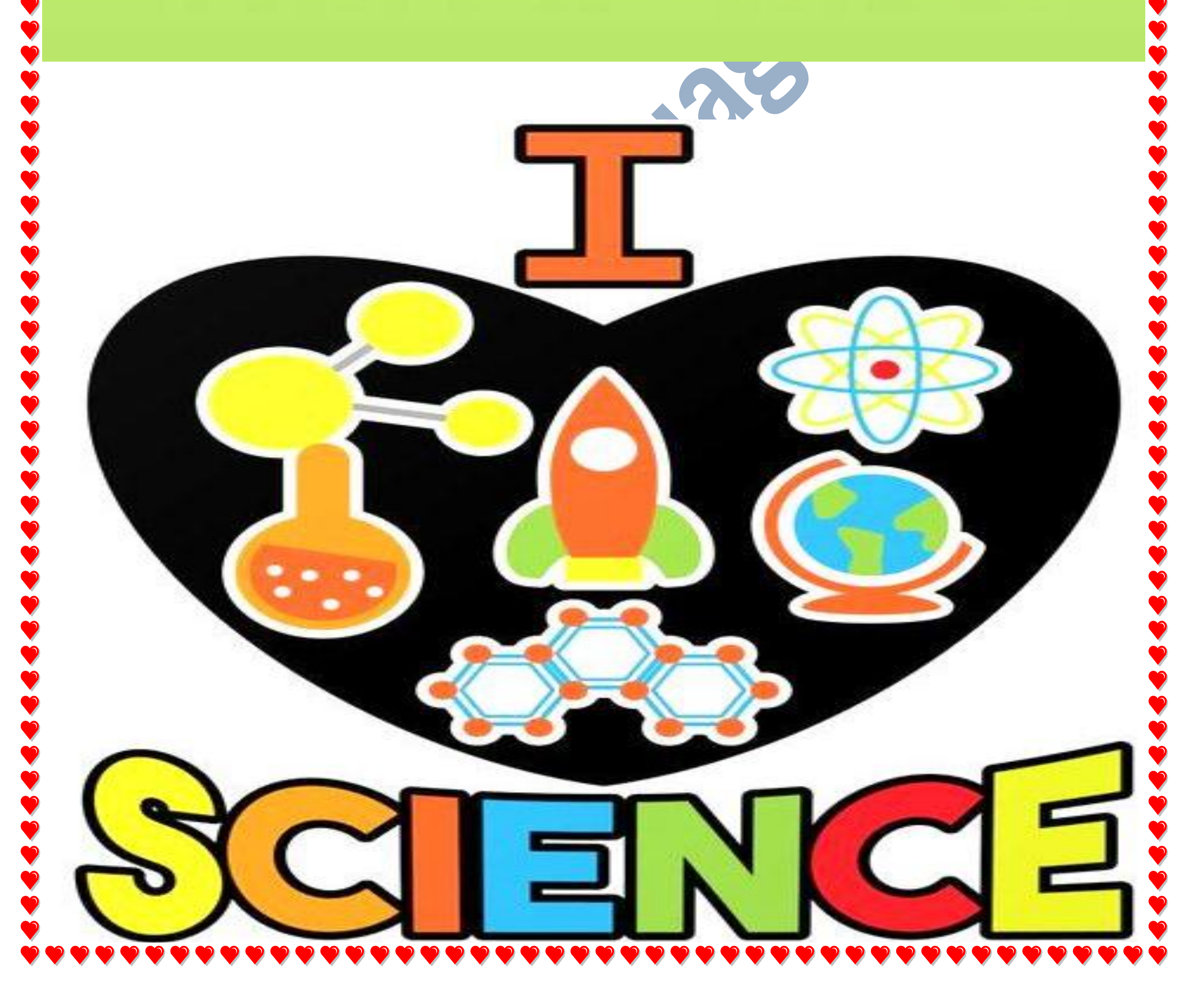
5- They design ways to protect a community from floods.

6- They calculate the amount of drinking water that we need.

7-They test the sources of drinking water in communities to make sure it is safe to drink



Worksheets



Worksheets with model answer on concept (3.1)

Worksheet (1)

1-Choose the correct answer:

1. All the following are components of the atmosphere, except…………

a. oxygen gas. b. nitrogen gas.

c. molten rocks. d. water vapor.

2. Rocks are broken down into smaller particles during …………………process

a. photosynthesis. b. weathering

c. erosion. d. respiration

3. Which of the following is a part of the hydrosphere ?

a. Water. b. Air. c. Rocks. d. Plants.

4. Which of the following is a part of the biosphere ?

a. Ice. b. clouds. c. Water. d. Animals.

5. By heating of water it changes from……….….. state to…..……….

a. solid-liquid. b. liquid – solid.

c liquid-gas. d. gas liquid.

2-Write the scientific term of each of the following:

1. A water body that is surrounded by land.(………………………………….)
2. A cycle shows the continuous movement of water from the Earth to the atmosphere then to the Earth again.(……………………………….)
3. The process of breaking down of rocks into smaller particles due to the effect of rain, water or temperature.(……………………………….)

Worksheet (2)

1-Put (√) or (×):

1. Earth's systems don't interact with each other. (   )

2. When wind carries seeds of some plants to new places an interaction between the atmosphere and biosphere can be observed. (   )

3. Weathering of rocks because of the effect of rains is an example of an interaction between hydrosphere and biosphere. (   ).

4. Water evaporates from the surface of a lake will move from the atmosphere to hydrosphere. (   )

2-Complete the following sentences:

1. A rat that digs a barrow in the soil is an example of the interaction between……………………………..and geosphere.
2. Irrigation of plants is an example of the interaction between two Earth's systems which are ………………….and ……………….……
3. Air pollution due to the burning of wood of trees is an example of an interaction between two Earth's spheres which are ……………....and……………………..……

Worksheet (3)

1-Write the scientific term of each of the following:

1. The system of Earth all different landforms. (……………………………….)

2. The Earth's system which is made up of water. (……………………………)

3.A large area of the world that has similar soil , climate , plants and animals. (……………………………….)

4. The Earth's system which consists of a mixture of gases surrounding Earth. (………………………………….)

2-Give reasons for

1. Importance of atmosphere for plants in making their food.

……………………………………………………………………………………………

2. More than 50% of known living organisms live in the aquatic environments.

……………………………………………………………………………………………

3. Most of the fresh water on Earth can't be used for drinking.

……………………………………………………………………………………………

Worksheet (4)

1- Give reasons for:

1. Some ponds and lakes may dry up during some months.

……………………………………………………………………………………………

2. No green plants can survive in the abyssal zones of oceans.

……………………………………………………………………………………………

2-What happens to ...?

1. Animals that live in lakes if they dry up.

……………………………………………………………………………………………



Worksheet (5)

1-Choose the correct answer :

1-Rivers and streams contain ……….water , while ponds contain ……….water

a-salt – fresh　　　　b-fresh – salt

c-running – still　　　　d-still – running

2-Water lilies can live in …………….

a-ponds　　　　b-seas

c-oceans　　　　d-deserts

2-Put (√) or (×) :

1-Some types of worms live in ocean. ( )

2-Rivers and steams are running fresh water bodies. ( )

3-Some animals live in streams such as catfish and salmon (trout). ( )

Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Shallow areas of oceans	a. don't receive sunlight.
2. Abyssal areas of oceans	b. contain coral reefs.
3. Frogs	c. live in salt water.
4. Dolphins	d. live in fresh water.
	e. live in deserts.

Model answer on concept (3.1)

Worksheet (1)

1-Choose the correct answer:

1.c 2.b 3.a 4.d 5.c

2-Write the scientific term of each of the following:

1. Lake
2. Water cycle.
3. Weathering

Worksheet (2)

1-Put (√) or (×):

1. x 2.√ 3.x 4.x

2-Complete the following sentences :

1.biosphere. 2.hydrosphere-biosphere 3. atmosphere-biosphere

Worksheet (3)

1-Write the scientific term of each of the following:

1. Geosphere.
2. Hydrosphere
3. Biome.
4. Atmosphere

2-Give reasons for:

1. Because plants fake in carbon dioxide gas from air during photosynthesis process.
2. Because water covers about 71% of Earth's surface.
3. Because most of the fresh water on Earth are in the from of frozen water.

Worksheet (4)

1-Give reasons for:

1. Because when the temperature increases in summer, water evaporates faster.

2. Because the abyssal zones don't receive sunlight, which is important for making food in plants.

2-What happens to …?

1. They have to adapt to the changes that happen or they'll die.

Worksheet (5)

1-Choose the correct answer :

1 – c / 2 – a

2-Put (√) or (×):

1-(×) / 2- (√) / 3- (√)

3-Choose from column (B) What suits it in column (A) :-

1-(b) / 2- (a) / 3-(d) / 4- (c)



Worksheets with model answer on concept (3.2)

Worksheet (1)

[1] Choose the correct answer:

1- The basic liquid matter which is needed by humans, animals and plants to survive is…………….

a. milk b. water C. Oil d. alcohol

2- Water can control the………. of living organisms bodies.

a. length b. height C. temperature d. volume

3- All the following are from sources of water on the Earth, except……………

a. ground water b. ponds C. glaciers d. molten rocks

4- At the end of Nile River , there is a/an……...between Nile River and Mediterranean sea.

a. lake b. wetland C. Ocean d. estuary

5- ……………are formed when water collects in low-lying areas.

a. Seas b. Oceans C. Lakes d. Rivers

6- Among the kinds of wetlands are…………………..

a. swamps and lakes b. marshes and bogs

c. ponds and oceans d. swamps and estuaries

7- Estuary is formed when the water of……….meets the water of…………

a. a river - a sea b. a river- groundwater

c. a sea - an ocean d. a sea-a wetland

[2] Put (√) or (×):

1-Oceans are considered as saltwater bodies . ( )

2- Among the sources of fresh water are rains. ( )

3- The percentage of fresh water is higher than that of salt water, so we should conserve salt water. ( )

4- Turning off the water tap, while washing your hair is from the ways to conserve water. ( )

5- Rivers often start in mountains in the form of estuaries. (   )
6- Assail lake is surrounded by land and it is a low-lying area. (   )
7-The type of water in wetlands is salt water only. (   )
8- There is an estuary between Nile River and Mediterranean Sea.(   )

[3] Write the scientific term of each of the following:

1- It is the liquid that all living organisms need to live (………………….)
2- A type of water which is suitable for drinking (………………..)
3- A water body that often starts in the mountain as a stream. (……………….)
4- The large water body that is surrounded by land. (……………………….)
5-The water bodies that surround the continents. (………………………)
6- It is a land area which is partially covered with water. (……………………)

[4] Complete the following sentences:

1- In High Dam, water is used to generate……………….

2- Rivers contain……..... water while oceans contain…………………water.

3- Glaciers are sources of fresh water which have a………state of matter.
4- We must take a quick shower to conserve……………..

[5] Give reasons for:

1- We must conserve fresh water

…………………………………………………………………………………………
2- You should turn off water tap during brushing your teeth

…………………………………………………………………………………………

[6] What happens if…?

1- Water is collected in a low-lying area.

…………………………………………………………………………………………

Worksheet (2)

[1] Choose the correct answer:

1-People obtain their needs of ……………….that is found in lakes , rivers , streams and ground water .

a-oxygen gas b-seaweed c-salt water d-fresh water .

2- The area of land where all the water flows to a common location as ocean is called………………

a. tributary b. estuary c. wetland d. watershed

3- The level of water in a river may increase causing flooding, when there is more……………………..

a. rainfall b. wind c. sunlight d sediments.

[2] Put (√) or (X):

1- We must conserve fresh water because it is limited on Earth. ( )

2- Building factories is from human strategies to control and conserve fresh water. ( )

3-When there is more rainfall, the level of water in rivers will decrease causing flooding. ( )

[3] Write the scientific term of each of the following:

1- It is an area of land where all the water flows to a common location usually an ocean, a sea or other large water body. (……………….…….)

[4] Complete the following sentences:

1-When the rate of rainfall decreases , the level of water in rivers will ………. Causing …………..

2-The type of water that is found in rivers most of lakes and streams is ……………….water .

[5] Give reasons for:

1- Scientists tend to preserve freshwater sources on Earth

…………………………………………………………………………………

[6] What happens if…?

1. The quality of fresh water becomes poor. ?

…………………………………………………………………………………

Worksheet (3)

[1] Choose the correct answer:

1. Tributary usually ends by the flowing of its water into bigger………..
   a. ocean b. sea C. river d. lake
2. The correct flowing of water bodies that are connected with others is
   a. bigger rivers ⟶ tributaries ⟶ Oceans.
   b. tributaries ⟶ bigger rivers ⟶ Oceans.
   C. Oceans ⟶ tributaries ⟶ bigger rivers.
   d. bigger rivers ⟶ Oceans ⟶ tributaries.

3.All the following reasons cause water pollution in a river , except …………
   a-litter of a nearby trash dump .
   b-waste of a nearby factory .
   c-chemical fertilizers of a nearby farm .
   d-building a dam across the river .

[2] Put (√) or (X):

1- The water of tributaries flow directly into seas and oceans. (   )
2- Upstream is the place where a river starts. (   )
3-Dam can hold the water behind it which causes a change in the amount of water in a water body . (   )

[3] Write the scientific term of each of the following:

1- They are small water bodies such as small creeks or streams that flow into bigger rivers. (……………..……….)
2- A building established across a river which can hold water behind it. (………………………..…….)

[4] Complete the following sentences using the words below:

(Chemical fertilizers - bays - creeks – seas - dams - streams)

1- Tributaries are considered as small……….or……….that flow into bigger rivers then into large water bodies as……………..and…………………

2- A farm that is found near a tributary may cause pollution to the water body i this farm using…………..

3. Building…………across a tributary can change the amount of water in it.

[5] Give reasons for:

1- Farms near tributaries may cause water pollution.

……………………………………………………………………………………………

[6] What happens if…?

1- A trash dump is established near a tributary that is connected with a river.

……………………………………………………………………………………………

Worksheet (4)

Q.1) Complete the following:

1- Plastic is made from…………while paper and wood are made from……….

2- The run out of ………………………….. causes wells to become dry.

3- To conserve water ,we can ….time of washing our hands.

Q.2) Choose the correct answer:

1- If some rabbits are placed in only one large area of grass ,this is considered as an example of ……………….of green areas.

a- Deforestation   b- preservation   c- sustainability   d- pollution

2- Prevent developing of Ras Mohammed Protectorate is considered as an example of …………….

a- Preservation   b- pollution
c- sustainability   d- consumption

3- Cutting down too many trees of forests leads to……………………

a. deforestation and soil deposition.   b- overpopulation and soil erosion
c. deforestation and soil erosion.   d- overpopulation and soil deposition

4- Family (A) Consists of 3 members and family (B) consists of 4 members, if you know that each member use 20 liters to washing hand daily, so the total amount of water that is used by family (A) is……………that is used by family (B).

a. more than   b-less than   c- double   d- equal to

Q.3) Write scientific term :

1- The action of control reaching of humans to the natural resources.
(…………………….)

2- It means using resources in a way that does not negatively affect the future supply of theses resource.   (……………………..)

Q.4) Give reason for:

1- We should turn of water during washing dishes.

………………………………………………………………………………………………

2- Countries prevent using or developing natural resources in some protected areas of land.

………………………………………………………………………………………………

Q.5) Choose from column (B) what suits it in column (A):

(A)	(B)
1- Cotton	a- Can be used in making plastic.
2- Oil products	b- Can be used in making paper.
3- Trees	c- Can be used in making clothes.
	d- Can be used in making cans.

1…………………… 2…………………… 3…………………

Worksheet (5)

Q.1) Put (√) or (x) :

1- Recycling of wastewater means removing waste materials from it. ( )

2- Dams can be used to filter polluted water to be used again. ( )

3- Adding some of mud to a clean water can pollute it. ( )

4- Cotton can be used as a filter to remove waste from water. ( )

5-Water is considered as a nonrenewable natural resource. ( )

Q.2) Choose the correct answer:

1- …………….can be used to recycle wastewater to be used again in human activities.

a- Bottles b-Filters c- Dams d- Generators

2- All the following materials can be used to filter wastewater in simple water filter ,except……………………..

a- Cotton b- wood c- charcoal d- sand

3-…………….process is used to get filtered water from polluted water.

a- Recycling b- Sustainability c- Preservation d- Conservation

4-Sand, charcoal and cotton can be used to remove all the following materials from wastewater, except……………………….

a. small pieces of plastic. b- salt dissolves in water

C. small particles of mud d-small pieces of rocks

5- In simple water filter, wastewater must pass through………………………
a- cotton hen charcoal then sand
b- cotton hen sand then mud.
C- charcoal hen cotton then sand.
D- sand then, charcoal then cotton.

Q.3) What happens if:

- You mix clear water with small amount of mud.

……………………………………………………………………………………

Q.4) Give reason:

- Scientists recycle fresh wastewater to get filtered water again.

……………………………………………………………………………………

Q.5) Look at the following figure, then answer:

1. ……………
2. ……………
3. ……………
4. ……………
5. ……………

A) Label the figure using the following words:
(charcoal- wastewater- cotton- filtered water- sand)

B) The tool above shows a simple …………..,and it is used to remove ……………materials from wastewater. (complete)

Worksheet (6)

Q.1) Put (√) or (x) :

1-In water treatment plants, harmful materials are removed from wastewater to reuse it again. ( )

2- Wastewater engineers do not test the treated water after finishing the water treatment process. ( )

3- Wastewater engineers decide where to build water treatment plants. ( )

4- Hydrologists are scientists that work on recycling wastewater in water treatment plants. ( )

Q.2) Write the scientific term:

1- They are stations which recycle wastewater by removing harmful materials from wastewater to reuse it. (……………………….)

2- Scientists who work in water treatment plants. (………………….)

3- It is the water that has already been used in homes and different industries. (…………………...)

Q.3) Give reason for :

-Wastewater engineers test the treated water.

…………………………………………………………………………………………

Q.4) Choose the correct answer:

1- All the following may happen to the treated water, except………………..

a- It is used again by human **b- it is released into air**

c- it is released to river **d- it is released to lakes**

2-Water cycle is considered as an example of……………..

a-Recycling water **b- preservation water**

c- overusing water **d- conservation water**

Q.5) Complete the following:

1- Wastewater engineers work in ……….plants and design tools that provide us with clean………………

2- Water treatment plants recycle the……………….by removing harmful materials from it to reuse again.

3- Wastewater engineers design ways to protect communities from…………………

Model answer on concept (3.2)

Worksheet (1)

{1} 1- b / 2- c / 3- d / 4 – d / 5 - c / 6 – b / 7 – a

{2} 1-(√) / 2- (√) / 3- (X) / 4- (√) / 5-(×) / 6- (√) / 7- (×) / 8 – (√)

{3}

1-Water	2-Fresh water	3-River	4-Lake	5-Ocean	6-Wetland

{4} 1- electricity 2- fresh – salt 3- solid 4- fresh water

{5} 1- Because there is a limited amount of fresh water on earth

2- To conserve fresh water

{6} 1-A lake is formed

Worksheet (2)

{1} 1- d / 2- d / 3- a

{2} 1- (√) 2-(×) 3- (×)

{3} 1- Watershed

{4} 1- decrease - drought / 2- fresh

{5} 1- Because , the amount of fresh water is limited on Earth

{6} 1- It leads to death of living organisms and extinction of some species live in fresh water.

Worksheet (3)

{1} 1- c / 2- b / 3- d

{2} 1- (×) / 2- (√) / 3- (√)

{3} 1- Tributaries / 2- dam

{4} 1- Creeks – streams – bays – seas / 2- chemical fertilizers / 3- dams

{5} 1- Due to using of chemical fertilizers that cause water pollution

{6} 1- The litter of the trash dump will be blown into the water of tributary then into the river causing water pollution.

Worksheet (4)

Q.1) Complete:

1-oil products – trees . 2- groundwater 3- decreases.

Q.2) Choose the correct answer:

1- c / 2- a / 3- c / 4- b

Q.3)Write scientific term :

1- preservation. 2- sustainability.

Q.4) Give reason for:

1- To conserve fresh water. 2- To preserve natural resources.

Q.5) Choose from column (B) what suits it in column (A):

1.c 2.a 3.b

Worksheet (5)

Q.1) Put (√) or (x) :

1- (√) / 2- (x) / 3- (x) / 4- (√) / 5- (x)

Q.2) Choose the correct answer:

1- b / 2- b / 3- a / 4 –b / 5-d

Q.3) What happens if:

It will become dirty water.

Q.4) Give reason:

Because fresh water is a limited renewable natural resource which is very important for all living organisms.

Q.5) Look at the following figure, then answer:

A) 1- wastewater 2- sand 3- charcoal 4- cotton 5- filtered water.

B) Water filter - harmful

Worksheet (6)

Q.1) Put (√) or (x) :

1- (√) 2- (x) 3-(√) 4-(x)

Q.2) Write the scientific term:

1- Water treatment plants. 2- Wastewater engineers. 3- Wastewater.

Q.3) Give reason for :

To make sure it is safe before the water is released to rivers and lakes or used by human.

Q.4) Choose the correct answer:

1-b 2 -a

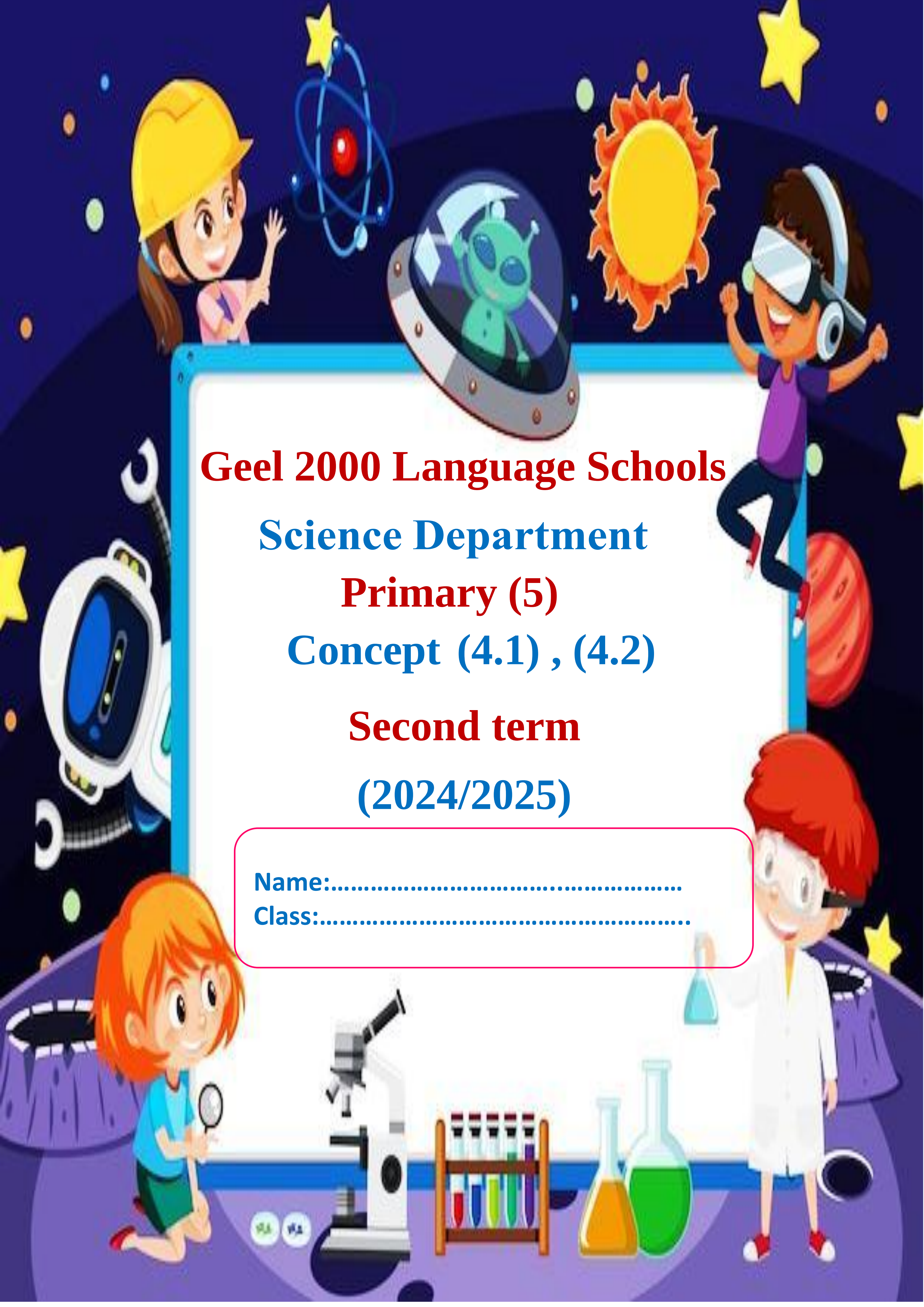
Q.5) Complete the following:

1-water treatment –water.

2-wastewater.

3- Floods.





Geel 2000 Language Schools

Science Department

Primary (5)

Concept (4.1) , (4.2)

Second term

(2024/2025)

Name:...
Class:..



Concept (4.1)

Effects of gravity

Lesson (1)

We find the effect of gravity in everything around us.

Gravity:

- It is the force that pulls objects with mass toward the center of Earth.
- It is the force of attraction between objects.
- It is an invisible force.
- It is a pull force only.

How does gravity affect the movement of objects?

- The force of gravity pulls objects down toward the ground, such as skydivers that fall down toward the ground.
- Gravity pulls objects toward the center of Earth.
- The force of gravity between the Sun and objects in the solar system keeps the planets revolve in fixed orbits.
- The force of gravity is pulling the moon, as a result, the moon still revolves in its orbit around Earth.
- If there were no gravity between the moon and Earth, the moon would just float off into space.
- The gravity of the moon affects the ocean tides.







➢ Factors affect the gravity: -

- On the Earth's surface, objects with large masses have more gravity than that of objects with small masses.

❖ Gravitational force (gravity) of an object increases, as its mass increases and vice versa.

❖ Gravitational force (gravity) decreases, when the distance between two objects increases and vice versa.



Give a reason: -

- In basketball game, each time the ball is thrown into the air, it falls down toward the ground.

Due to gravity that pulls the ball down toward the ground.



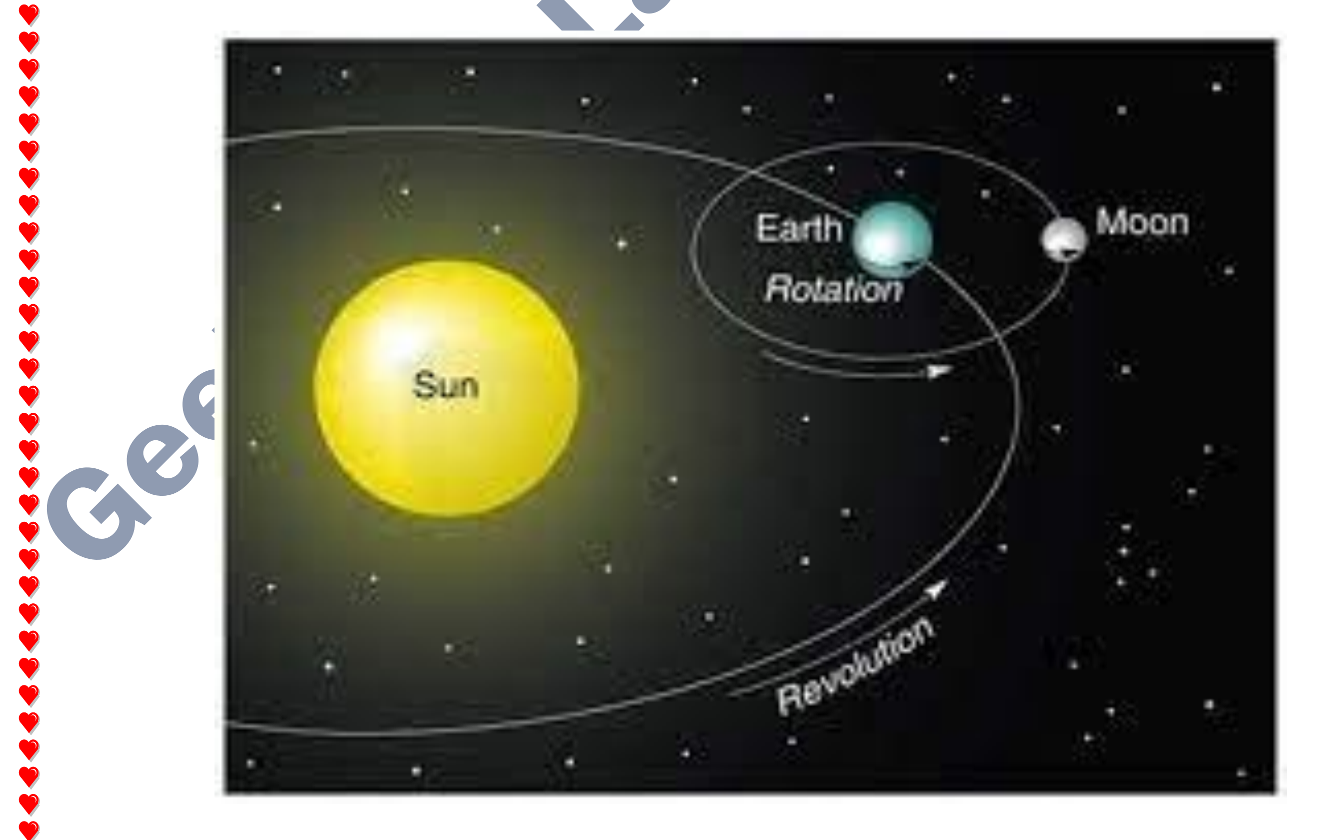
What happens if?

1. The mass of the moon becomes twice its real mass.

   The moon would have more gravity, so it would pull closer to Earth and it might even crash into Earth.

2. The distance between the moon and Earth becomes twice than it is.

   The gravitational attraction between them would become smaller.





Lessons (2, 3)

• **Forces are needed to make things move.**

Force:

It is a pull or a push that is applied to an object.

Example

➢ **The paper clips can be attracted to the magnet, if the magnet does not touch them.**

- **Forces can affect different objects in two ways which are contact force and noncontact force, where:**

- In contact force, the two objects need to contact each other for the motion of one object, as when you kick a ball, your foot must contact the ball to make it move.

Motion means a change in the position of an object compared to another object

- **In noncontact force, the two objects do not need to touch or contact each other for the motion of one object, as the magnet does not need to touch the paper clips to attract them.**

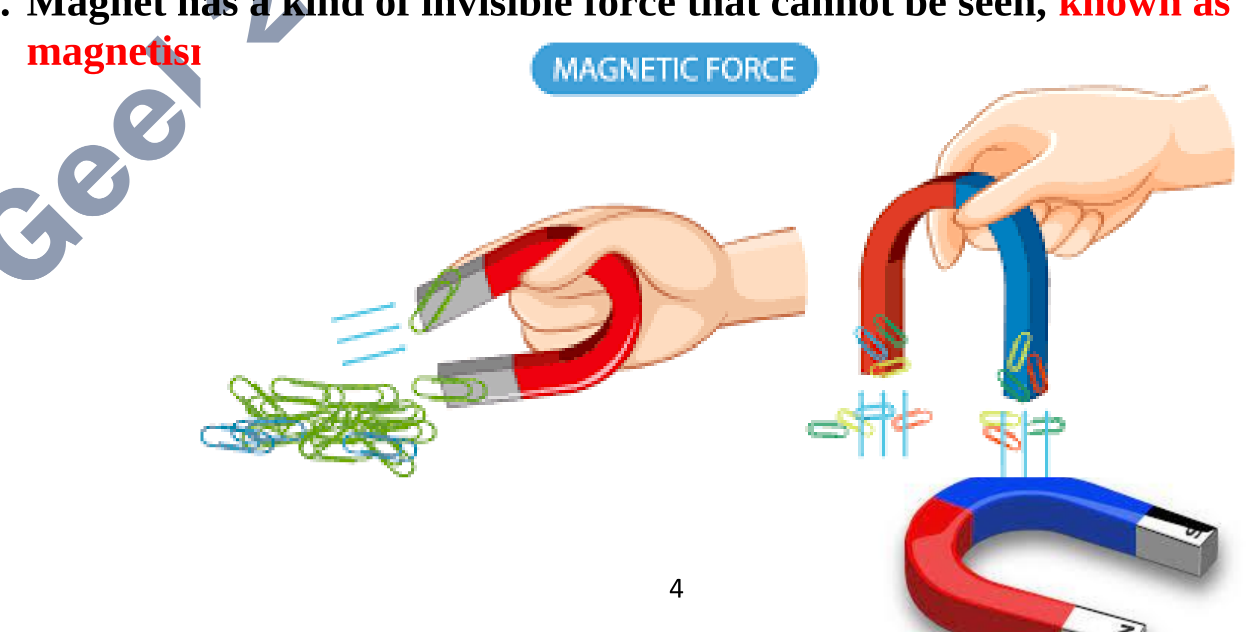
Forces can pull or push objects in different directions.

Some forces are weak, like the push force needed to move a toy car, while other forces are strong, like the push force needed to move a real car.

❖ ***Types of forces: -***

As magnetism, wind, gravity……….etc.

1. **Magnet has a kind of invisible force that cannot be seen, known as magnetis**





Magnetism:

- **It is the force of attraction or repulsion between two magnets or between a magnet and an object.**

- **Magnet can exert a pulling force or a pushing force using the force of magnetism as follows:**

Type	a. Pulling force of magnet:	b. Pushing force of magnet:
Cause	Magnet pulls paper clips up.	Magnet pushes away another one.
Effect	Paper clips move to it.	The other magnet is pushed away.



2. Cause: Wind pushes on the blades of a wind turbine.
Effect: Wind turbine blades move.

3. Cause: You squeeze a spring.
Effect: The spring pushes back when you leave it free.

4. Cause: Gravity pulls a cup you drop to the floor.
Effect: The cup falls to the ground.

❖ **We know gravity is a force (G.R)**
Because we can see its effects around us, such as when something falls.

Gravity : it is the force of attraction that exist between objects .

For example:

An egg could slip out of your hand and fall to the floor.

❖ **The force of gravity keeps us from floating into space like that happens with astronauts.**





- **When you drop a ball or a book, it falls down toward the ground.**
- **In space, there are big and small planets, where bigger planets have more gravity than that of smaller planets.**
- **The force of gravity keeps the planets revolve in their orbits or on fixed paths around the Sun.**

- **Like the gravity of planets in space, we can say that:**

Gravity changes the direction of anything you throw into the air.

➢ ***Note***

Gravity does not only act on falling or moving objects but also, it acts on objects that do not move, such as a boy sits on a chair or a book on a shelf.

➢ **All objects have gravity (G.R)**

Because they all have mass.

- **Objects with greater mass exert greater force on objects around them as in the Earth-and-moon system where :**

- **Earth is bigger than the moon and it has more mass so, Earth has stronger gravity than the moon**
- **Also, the gravity of the moon causes the attraction of Earth toward the moon.**

• The moon stays in a fixed orbit around Earth due to the gravitational force of Earth

- **All objects on or near Earth's surface are pulled down toward the center of Earth.**
- **The weight is always being pulled toward the ground.**





Lesson (4)

❖ **You cannot see gravity, but you know it is there (G.R) because you can see its effects.**

➢ ***Examples:***

- **The Sun pulls all planets toward it.**
- **Gravity keeps our planet in an orbit around the Sun.**
- **Gravity keeps our atmosphere around Earth.**
- **On Earth, gravity pulls everything (such as humans, rocks, water bodies, animals, chairs, etc.) and holds them to the ground toward the center of Earth.**
- **Skydivers and their parachutes are pulled downward toward Earth's surface.**



- **Objects like balls drop to the ground after being thrown up into the air.**

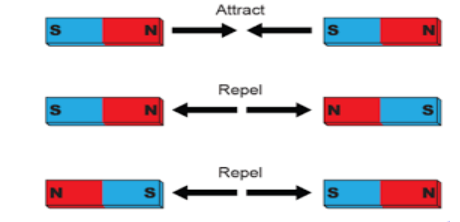
Due to Earth's gravity that pulls them down toward the ground.

Magnetism:

It is a force that attracts metal objects made of iron, nickel or cobalt by pulling on them.

➢ ***Example:***

- **Some iron nails can be attracted to a magnet due to its pulling force on them.**





Friction:

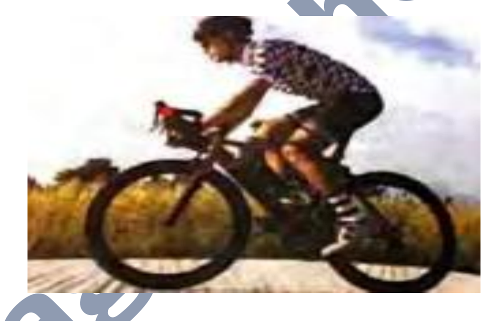
- **It is a force generated between two touching surfaces.**
- **It is a force that opposes the motion of a body across a solid surface or through a gas or liquid.**

❖ **Friction slows the movement of objects.**

➢ ***Example*:**

A bicycle brake pulls back the movement of the tires by friction when the bicycle brake rub against the tires.





Air resistance

- **It is considered as a type of friction force.**
- **It is a force that opposes the movement of an object as it passes through air.**

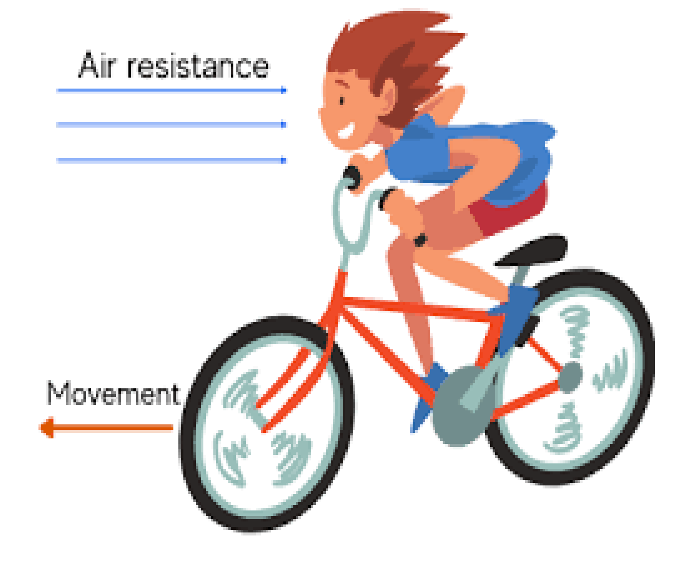
➢ ***Example*:**

Skydiver releases parachute to slow his drop, where:

When the skydiver open his parachute, it gets filled with air due to the upward flow of wind forming air resistance to the parachute.

The air resistance pulls the skydiver backward and slows his fall to Earth's surface.







Lesson (5)

Law of Motion:

The force of gravity is constant and acts on all objects in the same way.

Imagine that there is no air resistance on Earth:

So, according to the law of motion, if we drop a hammer and a paper at the same time from the same height, they will reach the floor at the same moment because gravity acts on all objects in the same way, where the mass or the shape of the objects would not matter.



Lesson (6)

Our solar system consists of the Sun and a group of planets revolve around it.

In 1543, a scientist called Nicolaus Copernicus stated that Earth revolves around the Sun.

In the solar system, each planet revolves around the Sun in a fixed path called an orbit.

The orbit of each planet has an ellipse (oval) shape.

Earth revolves around the Sun at a speed nearly equals 107000 km per hour.

What keeps the planets revolve around the Sun in fixed orbits?

Gravity is the invisible attraction or pulling force that holds all the planets in their places.

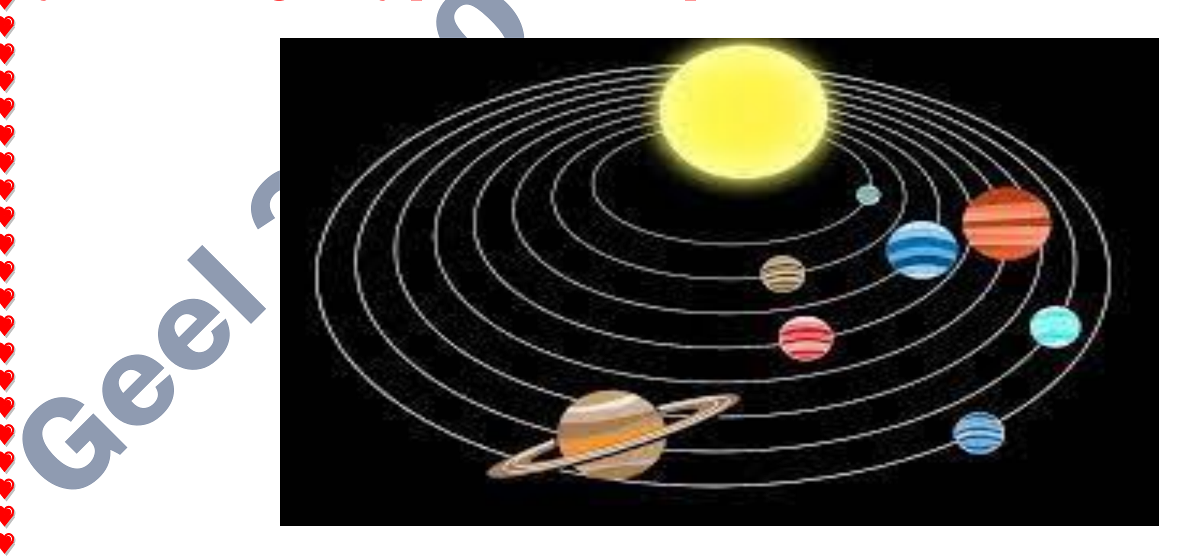
The great gravitational pulling force of the Sun keeps the planets revolving in fixed orbits.

If there were no gravity, the planets would fly off into space.

➢ Give a reason for:

- The Sun is the only center of motion in the solar system.

Because the Sun is much bigger than all the other objects in the solar system, so its gravity pulls the other planets toward it.





Concept (4.2)

Patterns of Motion in the Sky

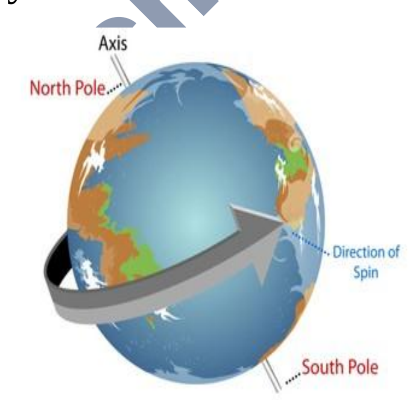
Lesson (1)

What causes the cycle of day and night and why do the Sun, planet and Stars appear to move across the sky?

- Earth's rotation causes:

- The cycle of day and night.
- The Sun, planets and stars appear to move across the sky.
-Shadows of objects to move throughout the day.

Day and night



-Earth spins (rotates) all the time.
-We cannot feel Earth spinning, but we know that from the regular pattern of day and night.
.The phenomenon of regular pattern of day and night happens due to Earth's rotation on its axis.

Earth's axis

It is an imaginary line passing through the North and South poles.
Earth takes a whole day (24 hours) to make one complete turn on its axis.

During Earth's rotation:

-Half of Earth faces the Sun, so this part has day.
- The other half of Earth faces away from the Sun and doesn't receive any light, so this part has night.

Note:

-The rotation of Earth causes:

- Regular pattern of day and night.

- The appearance of the Sun as it is moving across the sky.

Where is the Sun in the sky?

-The Sun appears to change its direction in the sky during the day.

-When you are facing the north direction of Earth and stretch your arms, you will see that:

-In early morning

The Sun would be to your right (east), rising in the sky.

-At noon:

The Sun would be above you in the center of the sky.

-In late afternoon:

The Sun would be to your left (west), setting in the sky.

Note

If you change your direction, facing north or south, the Sun will always rise in the east and set in the west.

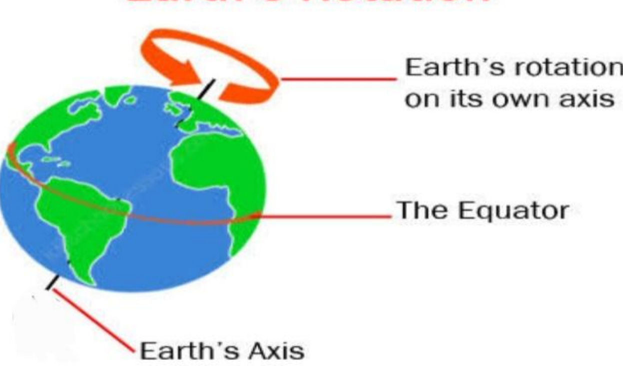
Rotation or revolution

Rotation:

It is the spinning of an object around an axis.

Example:

Earth rotates on its axis.

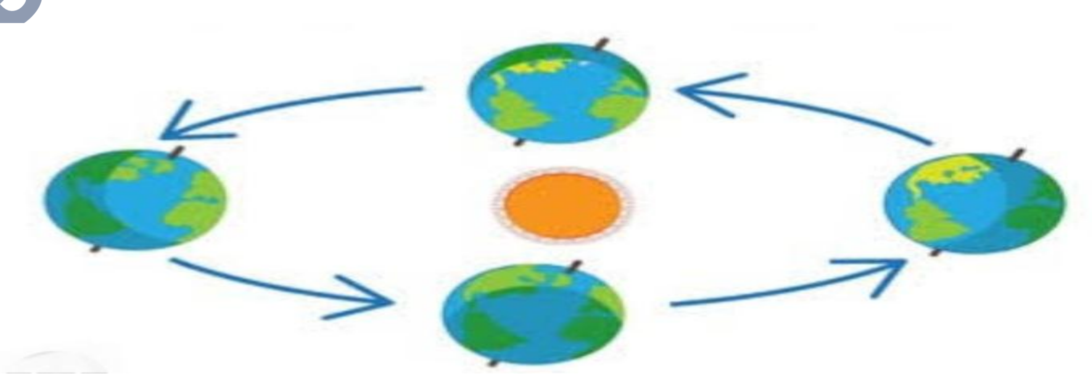


Revolution

-It is the orbiting of an object around another object

Example:

Earth revolves around the Sun in an orbit.





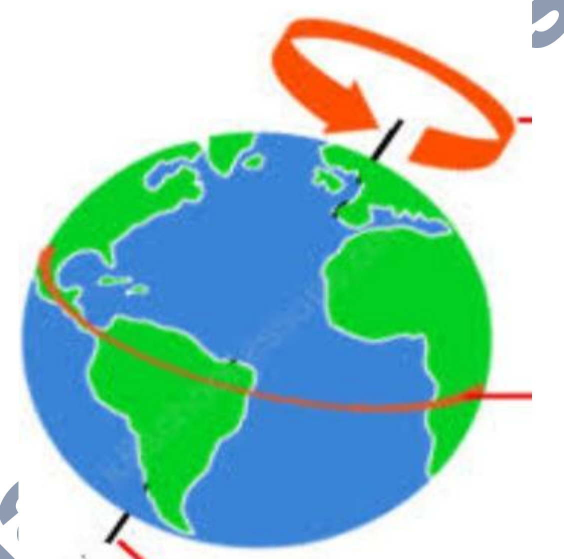
Lesson (2)

Rotation

Cycle of day and night:

-Cycle means a series of events that is repeated in the same order for example:

- The cycle of day and night.
- The cycle of seasons.

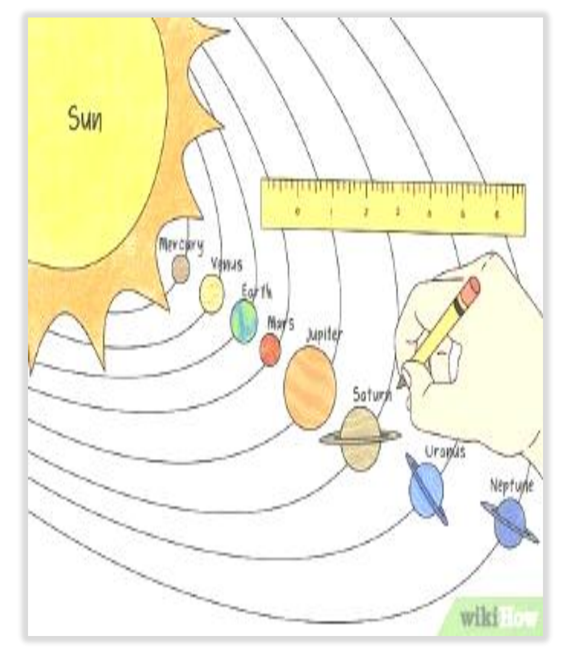


- Earth rotates counterclockwise on its vertical axis that passes through the two poles of earth causing the cycle of day and night.

Note:

Earth's revolution around the Sun causes the cycle of seasons.

Solar system:



-Solar system includes the Sun and eight planets that revolve around the Sun in fixed orbits.

-Planets rotate on their axes at different speeds.

-Jupiter is the fastest planet that rotates on its axis in the solar system (Jupiter is one of the eight planets of solar system).

Note:

-Earth revolves around the sun in an elliptical orbit and the angle of tilt changes throughout the year .

- Earth is slightly titled on its axis .



- **G.R:** sun travel across the sky in different speed each day .



Because of the elliptical orbit of earth and the tilt of earth on its axis

❖Sunrise and sunset in some cities in Egypt :

- **Sun rises from east ant sets from west so the cities in east see the sunrise before the cities in west**

EX:

Maras Alam (east of Egypt) sees the sunrise 46 minutes before siwa (west of Egypt) so the length of day in maras alam is always longer than it in siwa .





Lesson (3)

Movement of objects in the sky

-Earth's rotation on its axis causes celestial bodies such as (the Sun and stars) appear to move in the sky such as:

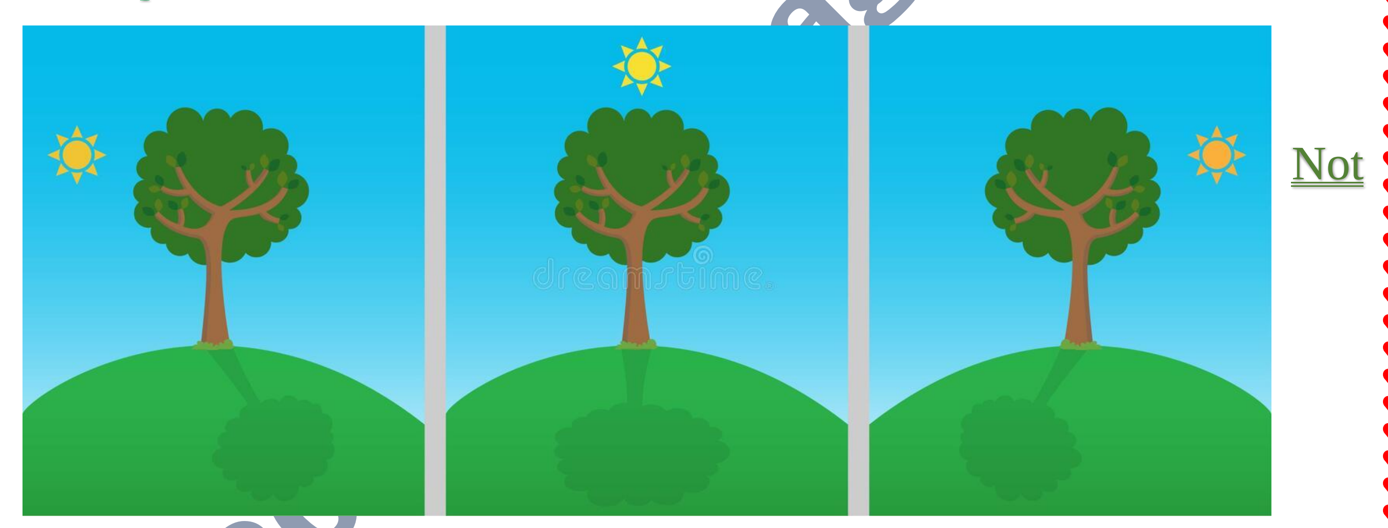
- The Sun appears to rise in the east and set in the west.

-**Stars seem to move in the sky at night,** where some stars seem to rise and set like the Sun.

Notes

1. The Sun causes the formation of shadows of objects on Earth.
2. As the Sun appears to move in the sky, this causes the movement of shadows of objects which proves that Earth rotates on its axis.

For example: the shadow of a tree.



Not

Factors that affect the length and angle of shadow:

1. The position of the Sun in the sky, where:

-**At noon**, the Sun is high and most directly above us in the sky, so it forms the **shortest** shadows of objects.

- **In morning and afternoon**, **the Sun is low** and at east or west in the sky, so it forms **longer** shadows of objects.

2. The amount of sunlight that reaches the Earth's surface during different seasons.



Lesson (4)

Constellation:



It is a group of stars that forms a pattern or looks like a certain shape in the sky.

Stars that form a constellation are not connected to each other but, if these stars are connected by imaginary lines, they will look like an object, animal or person.

For example:

The Constellation Orion that ancient Greeks gave it this name relative to a **mythical hunter.**

Constellations

Starlight



-Stars make their own light where they are made of **hot gases** that make them bright.

-Some stars are **larger** than the Sun while others are smaller than it.

-Planets and moons don't make their own light.

-**We see the moon bright in the sky (G.R) because it reflects light from the Sun.**

Constellations

-Some constellations are always visible in the sky, while other constellations can be seen only during specific seasons.

-Stars closer to the north and south poles move slightly in the sky, so the place of these stars (constellations) changes a little bit in the night sky throughout the year.

Note

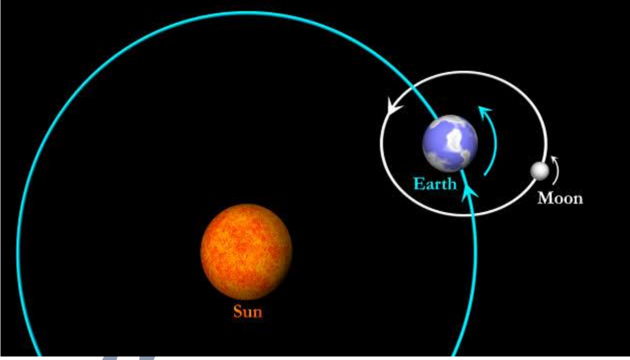
Location of constellations in the sky during the year, help us to determine the main directions (north, south, east and west).

Lesson (5)



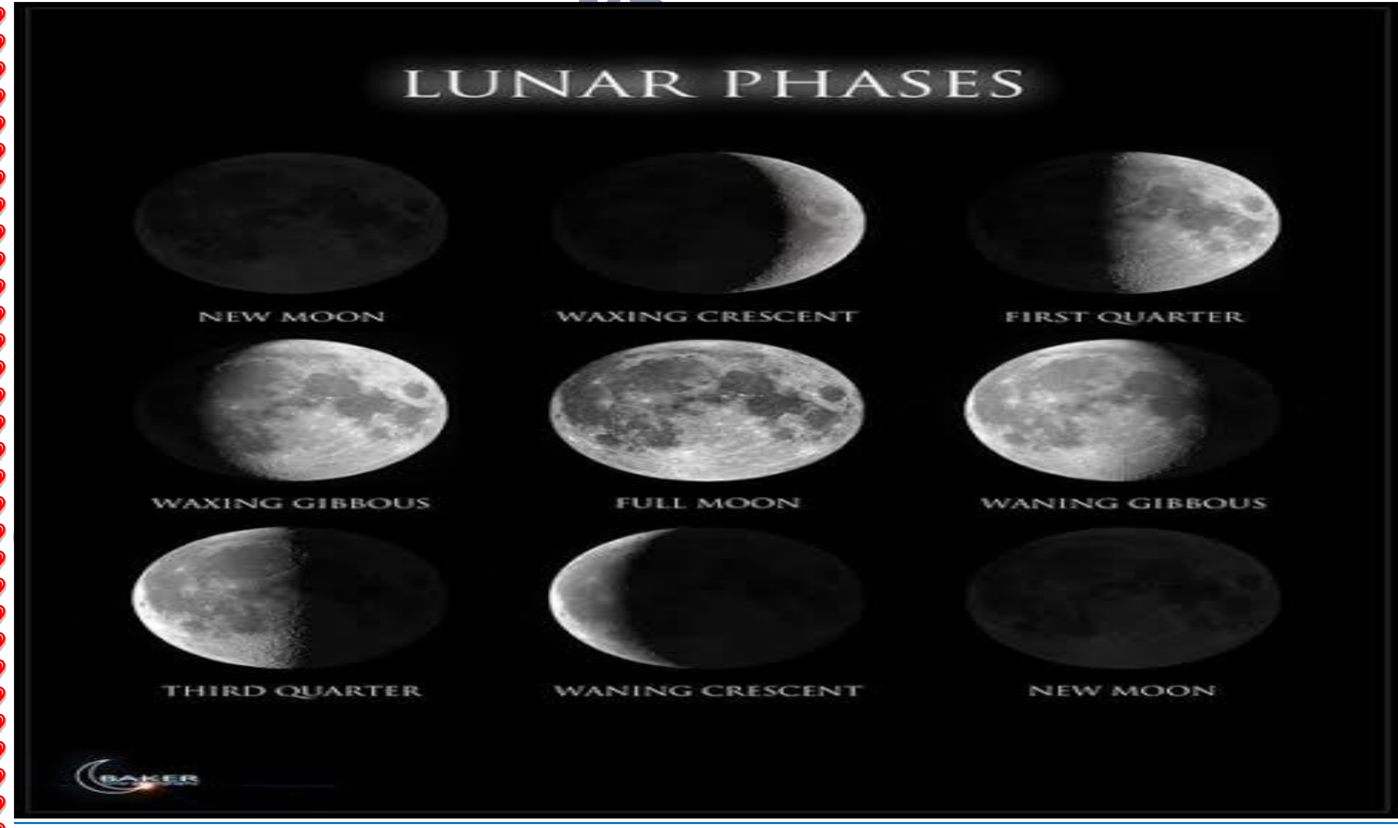
- The moon revolves around the earth in an elliptical orbit .
- (G.R) moon have different phases in the night sky .
  Due to earth's revolution around sun , moon revolution around earth and both earth and moon revolve around sun .





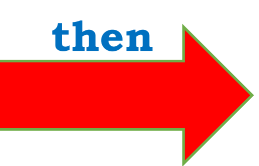
❖ The moon phases during the lunar month :

-The moon phase are changed during the lunar month called Hijri month
- the cycle of moon phases or lunar phases is repeated at the beginning of each lunar month as follow :

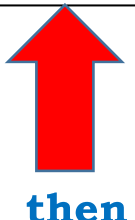




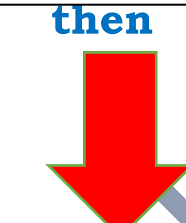
1- One half of the moon's face is illuminated and the other half is darkened is called **first quarter**



2- First phase is called **first crescent** which moon appears illuminated crescent and its size increase



then



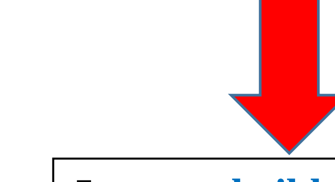
3- The brighten part of the moon's face **increase** and line separating the lighted part and the darkened part appears curved and this phase called **first gibbous**

Then

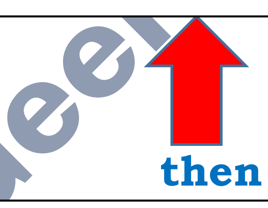
4- **Full moon** : this face appears in the middle of lunar month and appears **fully illuminated**

then

5- **second gibbous** : the brighten part of moon's face **decreases** and the line separating the darkened part and the lighted part appears curved

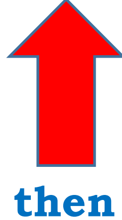


6- **second quarter** :one half of the moon's face is darkened and the other half other illuminated .



7- **second crescent** : the moon's face appears **illuminated crescent**

then



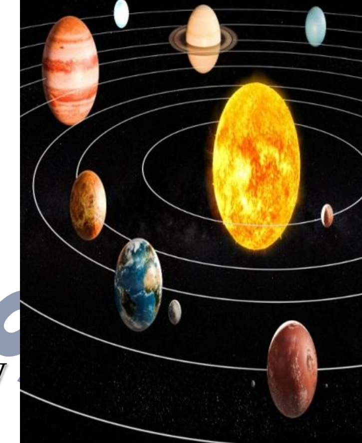
8- **new moon: it's a phase that moon faces earth is fully illuminated and appears in the last day of the lunar month**

then



Lesson (6)

The Sun



- It is a medium-sized star.
- It is the only star that is located in our solar system, while other stars are farther away from the solar system.
- It appears so bright in the sky, because it is the largest in the solar system and it is the **Solar system closest star to Earth.**
- It provides Earth with heat and light which are necessary for continuity of life on Earth.

When you look at night sky, you will see a huge number of stars.

Stars

They are giant spheres of superhot gases most of them are hydrogen and helium.

Stars appear bright in the sky due to burning of gases that form these stars.

Observing stars at night

How does the Sun produce heat (thermal energy) and light energy? The Sun uses the energy produced from reactions between gases inside it to give off heat (thermal energy) and light energy.

Scientists have been interested in studying the Sun patterns of motion.

Examples of these scientists:

1 Copernicus: He proved that the Sun is the center of our solar system.

2 Albert Einstein: He explained how the Sun converts matter directly into energy (light and heat) that reaches planet Earth.

Notes

1. As a result of the huge mass of the Sun, it has a great gravitational pulling force that keeps 8 planets including Earth and more than 200 moons in continuous fixed orbits around the Sun.

2. Some scientists believe that the number of stars is more than all the grains

of sand on Earth's beaches.

How do we study the stars?

Stars can help us understand how our galaxy and other galaxies formed.



Galaxy;

It is a group of stars, planets and gases held together by gravity.

Universe:

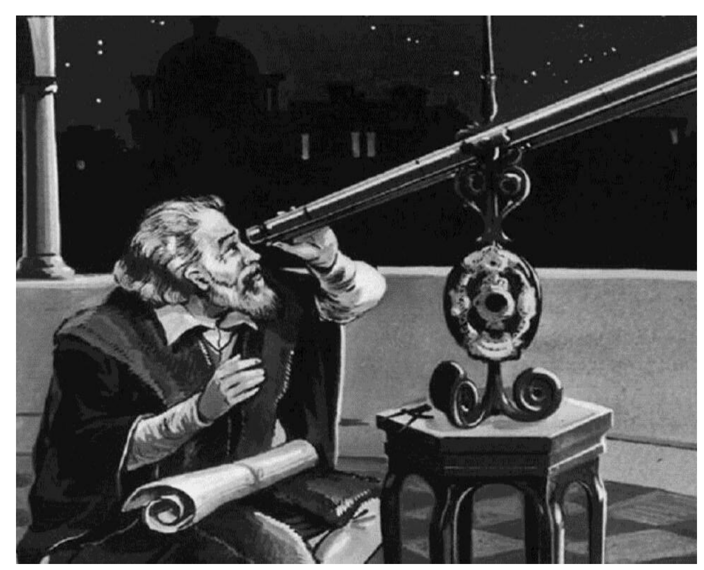
is the wide space that contains celestial objects as stars, galaxies, comets, meteors and human-made satellites like the International Space Station

If you look into space, you can see some celestial objects with naked eye but most of these celestial objects appear as small light dots, so it is hard to differentiate between them.

As the universe is so big, many objects are too faraway to be seen with the naked eye.

Astronauts cannot be sent to study these very distant objects like stars.

Technology helps human to invent some tools to see distant objects in more details such as:



Binoculars:

Such as Galileo binoculars

Telescopes:

Such as Hubble Space Telescope





Notes :

- (G.R) : atmosphere limits the using of some telescopes to see distant celestial bodies .



Because it allows some light waves to pass to the earth and blocks others .

- Planetarium : it's a place where we can see images of the stars, planets, constellations and other celestial bodies .

or

- Planetarium : is a special building with dome ceiling and used to see images of celestial bodies .
- Planetarium directors : they are scientists who study the behaviors and properties of celestial bodies in space .
- Planetarium directors → manage the planetarium buildings

↓

Responsible for making an amazing realistic show to bring outer space to earth .



Worksheets with model answer on concept (4.1)

Worksheet (1)

1-Choose the correct answer

1. A boy on a slide moves down toward the ground due to the effect of…………..

a. the boy's height. b. gravity.

c. friction. d. the temperature of air.

2. Gravity keeps the moon in orbit around………………………………

a. Sun. b. Earth. c. itself. d. another moon

3. Gravitational force of Earth is affected by……………………….

a. mass and time. b. mass and distance

c. mass only. d. distance only

4. If there is no Earth's gravity, the moon would……………...

a. revolves faster around Earth b. still orbit the Earth

c. attracts to Earth. d. floats off into space

5. All the following are properties of Earth's gravity, except……………

a. it pushes objects upward. b. it affects the moon.

c. it pulls objects downward. d. it is a type of attraction force.

6. Earth attracts objects towards…………………..

a. its center. b. the sky. c. the moon. d. the sun.

2- Write the scientific term of each of the following:

1. A force that pulls object down toward the Earth's surface.
(……………………………………………………)
2. A celestial body that orbits the Earth.
(……………………………………………………)
3. A phenomenon takes place in oceans and seas due to gravity of moon.
(……………………………………………………)



Worksheet (2)

1-Put (√) or (×)

1. **Magnet must touch objects to attract them.** ( )
2. **Force is the reason of motion of any body.** ( )
3. **Magnet has an invisible force called magnetism.** ( )
4. **Gravity is similar to magnetism because both of them has only pulling force.** ( )
5. **After leaving a squeezed spring, it has no force to return back to its original state.** ( )
6. **Small planets have bigger gravity than big planets.** ( )
7. **Gravity affects only on the moving objects but doesn't affect the objects at rest.** ( )
8. **Gravity is attraction or repulsion force between two objects.** ( )

2- Give reasons for:

1. **Paper clips are pulled toward the magnet.**

……………………………………………………………………………………………

2. **The ball changes its direction after we throw it upwards.**

……………………………………………………………………………………………

3. **Gravity of Earth is greater than gravity of the moon.**

……………………………………………………………………………………………

3- What happens if...?

1. **You squeeze a spring then leave it free.**

……………………………………………………………………………………………

……………………………………………………………………………………………

2. **There is no gravity on Earth.**

……………………………………………………………………………………………



Worksheet (3)

1- Choose the correct answer:

1. ……………...force acts on all objects on Earth.

a. Gravity b. Speed c. Electric d. magnetism

2. Gravity depends on the…………………… of a body.

a. speed b. mass c. length d. age

3. A table stands on the ground needs……………to move.

a. sunlight b. mass c. force d. air

2- Put (V) or (X):

1. All objects on Earth's surface is affected by magnetism force. ( )
2. Gravity of Earth push objects towards its center. ( )
3. The direction and mass of an object are changed due to gravity. ( )
4. Any object on Earth's surface is affected by repulsion force of gravity( )

3- Complete the following sentences using words below:

(Direction - gravity- center - pulling)

1. The direction of Earth's gravity is always toward………………… of Earth.
2. The force of gravity is always……………. force, and it changes the……………… Of movement.
3. Any object has……………………depending on its mass.



Worksheet (4)

1- Complete the following sentences:

1. A magnet has………….. force that attracts and pulls metal objects toward it.
2. A parachute in air is affected by…………………… that acts against the……………… force of Earth.
3. A person can control the speed of his bike by using…………….. to slow down its movement.
4. The force that arises between the bicycle brake and the tires is called……………...which slows down the movement of the bicycle.
5. Air resistance is a type of……………… force.
6. The direction of………………… force opposes the direction of a body moves through air.
7. The attraction force between the Sun and Earth is……………… than that between Earth and the moon because the Sun has………………mass.

2- Write the scientific term of each of the following:

1. The force that slows down the movement of objects through air.

   (…………………………………………………)

2. The force by which metals are attracted or pulled to a magnet.

   (…………………………………………………)

3. A type of friction force that opposes the movement of an object as it passes through air. (…………………………………………………)
4.
5. The tool that is used by skydiver to slow his drop.

   (…………………………………………………)

3- Give reasons for:

1. Skydiver opens his parachute during landing.

…………………………………………………………………………………

2. When you press the bicycle brake, its speed will stop moving after few seconds.

…………………………………………………………………………………

3. Some iron nails are attracted to a magnet.

…………………………………………………………………………………

Worksheet (5)

1- Put (✓) or (x):

1. Air resistance is a factor that speeds up the falling objects toward the Earth. (   )
2. All objects on Earth's surface are affected by gravity force which pulls objects downward. (   )
3. There is no air in space so, air resistance slows down the movement of objects through space. (   )
4. If there is no air resistance on Earth, all objects will reach the Earth's surface at the same moment when dropping them from the same height. (   )
5. Air resistance force acts in the opposite direction of gravity force. (   )
6. Heavier objects reach Earth's surface before smaller objects due to the effect of air resistance which affects their movement. (   )
7. Air resistance is a type of pulling force. (   )



2- Complete the following sentences using the words below:

(Law of Motion - slows down - gravity- air resistance - longer - shorter - constant)

1. The force that pulls objects down toward Earth's surface is called…………………
2. When the skydiver opens his parachute the force of…………………makes its speed……………………
3. When throw a plastic ball with holes from 5-meter height, it will take………..….. time to reach the ground while a paper clip takes……………… time when it is thrown from the same height.
4. The law which states that the force of gravity is…………. and acts on all objects in the same way is called…………………………..……

Worksheet (6)

1- Choose the correct answer:

1. The force of……………………. keeps the planets on their paths around the Sun.

a. air resistance b. friction c. gravity d. electricity

2. Gravity is……………………………….force that holds all objects in their places.

a. visible pulling b. visible pushing
c. invisible pulling d. invisible

3. The planets revolve around the Sun in fixed……………. orbits.

a. oval b. irregular c. rectangular d. triangular

4. The speed of Earth's revolution around the Sun is nearly……………… km per hour.

a. more than 100,000 b. more than 200,000
c. less than 100,000 d. less than 50,000

5. …………………………is (are) the center of the solar system.

a. The Earth b. The Sun
c. The moon and Earth d. The Sun and Earth

2- Put (V) or (x):

1. The Sun revolves around Earth. ( )
2. The planets revolve around the Sun by the effect of gravitational pushing force. ( )
3. Gravity is an attraction force that can be seen easily. ( )
4. The orbit of each planet has an ellipse shape. ( )
5. The Earth's gravity keeps all planets in their orbits. ( )
6. The scientist Nicolas Copernicus stated that Earth revolves around the Sun. ( )

Worksheets with model answer on concept (4.2)

Worksheet (1)

1- Choose the correct answer

1. The imaginary line that passes through Earth's center is called
a. the day. b. the axis. c. the night d. the pole.
2. The orbiting of an object around another object is called
a. revolution. b. spinning. c. rotation. d. speed.
3. the appears in the ………….. during early morning .
a. east b. west c. north d. south

2-Complete the following sentences using the words below:

(The center of the sky Earth - east - axis - 24 hours – earth)

1. Occurrence of day and night is due to the rotation of……..on its…………..
2. Earth completes one rotation on its axis once every………..
3. In the early morning the Sun appears in ……………. while at noon it appears In……………….

3- Give reasons for:

1. Occurrence of day and night.

……………………………………………………………………………………

……………………………………………………………………………………

2. Half of Earth appears dark at night.

……………………………………………………………………………………

……………………………………………………………………………………

3. The Sun appears as it moves across the sky.

……………………………………………………………………………………

……………………………………………………………………………………

4- What happens if ..?

1-Earth doesn't rotate on its axis.

……………………………………………………………………………………

……………………………………………………………………………………

2-Half of Earth faces the Sun.

……………………………………………………………………………………

3-Earth completes its spinning on its axis in 12 hours only.

……………………………………………………………………………………

……………………………………………………………………………………





Worksheet (2)

1-Complete the following sentences using the words below

(Jupiter- cycle -Sun)

1. Earth's revolution around the………………..... causes the cycle of seasons.
2. The fastest rotating planet in the solar system is……………….
3. The series of events that are repeated in the same order is called……………

2- Choose from column (B) what suits it in column (A):

(A)	(B)
1. Jupiter 2. Earth 3. The Sun	a. is the center of the solar system. b. is the fastest planet that rotates on its axis c. is the planet that completes one cycle on its axis in 24 hours. d. is the path in which planets revolve around the Sun.

1. …… 2. …….. 3. …………

3-Write the scientific term of each of the following:

1. The fastest planet during its rotation on its axis.

………………………………………………………………………

2. The time taken by Earth to complete one rotation on its axis.

…………………………………………………………………….

3. A phenomenon occurs due to Earth's revolution around the Sun.

……………………………………………………………………..

4- choose the correct answer :

1- In Egypt the cities in ……… see the sunrise before the cities in……..

a. east – west b. west – east c. north – south d- south – north

2- the earth's axis is …………………..

a. vertical b. horizontal c. circular d. real



3-the space craft that orbits earth takes about …………..to make one turn around earth .

a. more than 3 hours

b. more than one hour

c. Less than 2hours and more than one hour

d. Less than one hour and more than half an hour

Worksheet (3)

1-Complete the following sentences

1. Earth's rotation on………………..causes the Sun seems to rise in........direction and sets in…………….. direction.
2. Formation of…………………of objects is due to movement of ……. across the sky.
3. The first time piece that is used by ancient Egyptians to know the time is called……………………
4. The position of the Sun in the sky affects……………….. and……….….. of shadows of objects.
5. In morning and…………. the Sun forms longer shadow of an object.
6. At noon the Sun forms……………..shadow of an object.



2-Choose from column (B) what suits it in column (A):

(A)	(B)
1. Day and night phenomenon 2. Four seasons phenomenon 3. Formation of shadows	a, occurs due to the movement of the Sun in the sky. b. occurs when Earth completes one cycle on its axis. C. Occurs due to the revolution of the moon around Earth. d. occurs due to the revolution of Earth around the Sun.

3-Put (√) or (x):

1. Earth rotates on its axis at low speed. (   )

2. We can feel the movement of Earth easily. (   )

3. All objects on Earth's surface move with the same speed of Earth. (   )

4. Movement of objects in the sky is due to the Earth revolution around the Sun. (   )

5. The position of the shadow of Cairo Tower will not change during the day. (   )



Worksheet (4)

1. Choose the correct answer

1. The group of stars that make a certain shape in the sky is called…………

a. solar system. b. universe. C. constellation. d. ecosystem.

2. Constellation appear ………….. in the sky during the year.

a. at different positions b. at the same position

C. in winter only d. in summer only

3. All the following are from the properties of constellations, except.

a. they consist of stars and planets.

b. they change their positions throughout the year.

C. they seem to move across the night sky.

d. they can form certain shapes in the sky.

4. Every night, we can see new stars appear from ... direction.

a. north b. south C. east d. west

5…………are celestial bodies that make their own light.

a. Moons and planets b. The Sun and stars

C. The Sun and planets. D. Earth and the sun

2. Correct the underlined word:

1. Constellation consists of a group of planets that form a pattern. (………..)

2. Every night, new stars appear from west. (……………………)

3. Jupiter revolves around the Sun in a rectangular orbit. (……………..)



Worksheet (5)

1-cross the odd word :

1- Crescent – shadow – full moon – gibbous
2- Moon – sun – earth – Jupiter .

2-write the scientific term :

1- Dark object revolve around the earth and reflect the sun light . (.............................)
2- The moon phase at which moon seems completely dark . (.............................)
3- The moon phase at which moon seems completely bright . (.............................)
4- The moon phase at which one edge only appears bright (.............................)

3- Complete the following :

1- Through the month, we can see different ………………... of the moon in the sky .
2- The moon orbits ……………and both of them orbit ……………..
3- All moon phases are repeated every ………….
4- At……………… phase , the moon appears completely shining in the sky at night .



Worksheet (6)

1. Complete the following sentences using the words below:

(Galaxy - atmosphere - universe)

1. The wide space that contains celestial objects is called.

2. A protective layer around Earth that allows some light waves pass to Earth and blocks other light waves is called

3. Group of stars, planets and gases held together by gravity is called

2-Write the scientific term of each of the following:

1. It contains the Sun, eight planets and more than 200 moons. (…………………….)

2. The scientist who discovered that the Sun is the center of our solar system.

(……………………….)

3. The scientist who discovered that how the Sun converts matter directly into energy.

(…………………….)

4. It is a medium-sized star that provides us with heat and light. (…………………)

5. They are giant spheres of superhot gases most of them are hydrogen and helium. (…………………………..)

6. It is a group of stars, planets and gases held together by gravity.

(………………………..)

7. It is a wide space that contains celestial bodies as stars, galaxies, comets, meteors and satellites. (……………………..)



8. It is a protective layer around the Earth that allows some light waves to pass and blocks others. (……………………….)

3- Choose from column (B) what suits it in column (A):

(A)	(B)
1. Albert Einstein 2. Copernicus 3. The Sun	a. Orbits around Earth. b. Locates at the center of the solar system. c. Proved that the Sun is the center of the solar system. d. Explained how the Sun converts matter directly into energy.

4-Write the scientific term :

1- Scientists that manage the planetarium buildings . (……………………….)
2- A special buildings with dome ceiling and used to see image of celestial bodies (……..…………………..)



Model answer on concept (4.1)

Worksheet (1)

1- choose

1. b 2. b 3. b 4. d 5. a 6. a

2- Write scientific term

1. Gravity. 2.The moon. 3. The ocean tides.

Worksheet (2)

1 - Put (V) or (x)

1. (x) 2. (✓) 3. (✓) 4. (x) 5. (x) 6. (x) 7. (x) 8.(X)

2- Give reason

1. **Because of the force of magnetism.**
2. **Because gravity force always pulls it downwards.**
3. **Because the mass of Earth is greater than the mass of the moon.**

3- What happen

1. **The spring will be pushed back when you leave it free.**
2. **All objects on its surface will float off into space.**

Worksheet (3)

1- Choose

1. a 2. b 3. c

2- Put (V) or (x)

1. (x) 2. (x) 3. (x) 4. (x)

3- Complete

1. Center 2. Pulling – direction 3. Gravity



Worksheet (4)

1- Complete

1. Magnetism 2.air resistance – gravity

3.Brake 4. Friction 5. Friction 6. air resistance 7. bigger – bigger

2- Write scientific term

1. Air resistance. 2. Magnetism. 3. Air resistance. 4. Parachute.

3- Give reason

1. To slow down his speed due to air resistance.
2. Because the brake produces friction force
3. Because magnetism force pulls them to the magnet.
4.

Worksheet (5)

1- Put (V) or (x)

1. (x) 2. (✓) 3. (x) 4. (✓) 5. (✓) 6. (✓) 7. (x)

2- Complete

1. gravity. 2.air resistance - slows down. 3. longer-shorter

4.constant-law of motion

Worksheet (6)

1- Choose

1. c 2. c 3. a 4. a 5. b

2- Put (V) or (x)

1. (x) 2. (x) 3. (x) 4. (✓) 5. (x) 6. (✓)



Model answer on concept (4.2)

Worksheet (1)

1- Choose the correct answer

1. (b) 2. (a) 3. (a).

2-Complete the following sentences using the words below:

1-Earth - axis 2-24 hours 3-East - The center of the sky Earth

3-Give reasons for:

1. Due to the rotation of Earth on its axis.

2. Because it doesn't receive sunlight.

3. Due to the rotation of Earth on its axis.

4-What happens if….?

1. Phenomenon of day and night will not happen.

2. This half has day.

3. Day and night phenomenon happens.

Worksheet (2)

1-Complete the following sentences

1-sun 2-jupiter 3-cycle

2-Match

1-b 2-c 3-a

3-Write the scientific term of each of the following:

1. Jupiter. 2. Day 3. Four seasons.

4-choose the correct answer :

1- a 2- a 3- c

Worksheet (3)



1-Complete

1. its axis east- west 2. Shadows - the Sun 3. sundial.

4. the length angles 5. Afternoon 6. shorter

2-Match

1-b 2-d 3-a

3-Put (√) or (×)

1. (X) 2. (×) 3. (√) 4. (×) 5. (×) 6. (×) 7. (√)

Worksheet (4)

1- Choose the correct answer

1. c 2. A 3. A 4. C 5. B 6. B 7.c

2-Correct the underlined word:

1. Stars 2. East. 3. An oval

Worksheet (5)

1-cross the odd word :

1-shadow 2- sun

2-write the scientific term :

1-Moon 2- new moon phase 3- full moon 4- crescent

2-Complete the following :

1-Phases 2- earth – sun 3- month 4- crescent



Worksheet (6)

1-Compete:

1- Universe 2- atmosphere 3- Galaxy

2-Write the scientific term of each of the following:

1. The solar system. 2. Copernicus. 3. Albert Einstein.

4. The Sun. 5. Stars. 6. Galaxy.

7. The universe. 8. The atmosphere.

3-Match

1-d 2-c 3-b

4-Write the scientific term :

1- Planetarium director 2- Planetarium